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*Presented to both Houses of Parliament by Command of Her Majesty,
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GERMANY.

BERLIN.

Sir F. Lascelles to the Marquess of Salisbury.

(Received at Foreign Office, September 2, 1897.)

My Lord,

I HAVE the honour to transmit to your Lordship herewith a further Report on the German Colonies in Africa and the Southern Pacific, compiled from German sources by Mr. Spring Rice, Second Secretary at this Embassy.

A Report on the Finances of the German Colonies has been sent in already (Foreign Office, Miscellaneous Series No. 413, 1897). The enclosed report is a continuation of Mr. Gosselin's Reports of 1896 and 1895.

I have, &c.

(Signed) FRANK C. LASCELLES.

*Report for the Year 1895-96 on the German Colonies in Africa
and the South Pacific.*

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The total cost of the colonies to the Empire for 1897-98 is General estimated at 402,000*l.*, an increase since the last estimates of summary. 68,000*l.* The total value of the trade between the African colonies and the German Empire for 1896 was 567,400*l.*, the exports from Germany exceeding the imports by 106,900*l.*

In 1896 the white population of the German colonies was about 3,580, of whom 1,350 were officials and soldiers and 1,778 non-Germans.

The total force employed by the German authorities was 1,120 white officers and men and 2,000 coloured troops, besides the local police forces.

The present and preceding years have not been favourable. The last season in Togoland was extremely unhealthy, and the preceding season unfavourable to the growth of crops, so that there has been a falling-off of exports. South-West Africa suffered last year from a native rebellion, and this year from the rinderpest. East Africa has hardly recovered from its plague of locusts and the consequent famine. But in spite of these drawbacks, considerable progress has been made. German capital has shown confidence in the possibilities of the planting industry in East Africa, where large sums have now been invested. The labour question seems in a fair way to be settled, owing to the discovery of certain native tribes with an aptitude for labour. The land question has been put on a satisfactory footing, and the legal conditions of ownership clearly laid down. A law has been passed which enables Germans resident in South-West Africa to serve their time in the colonial troops, and thus gives a great impetus to the formation of these forces. Some progress

has been made in the surveys for the East African Railway, and the route may now be considered as settled; but no money is yet forthcoming, and the present Usambara line, 30 miles long, has come to a standstill for want of funds. The discovery of gold is announced from East Africa, as well as a rich find of coal within easy reach of Lake Nyassa, which will be of the greatest service in connection with the lake steamship service. In spite of unfavourable seasons, the export of coffee from Togoland has increased from 850 to 5,500 kilos., and there is a good chance that the plantations now being established in the Cameroons will be successful. An agreement has been arrived at with France, the terms of which are kept secret, but which, if it secures good relations with Dahomey and a fixed boundary, must prove a stimulus to the prosperity of the protectorate. South-West Africa, though suffering from drought and the scourge of rinderpest, as well as from the insufficiency of harbours, has already a white population of over 2,000. The guano deposits have yielded well. Farms are being taken up in the interior, and measures are about to be taken to improve the water supply by the construction of dams. The successful and rapid suppression of the outbreak of the Khanas Hottentots and the Hereros will, it is hoped, secure a lasting peace.

Two well-known figures have retired. Dr. Kayser, worn out with overwork and worry, was obliged to withdraw from the directorship of the Colonial Department, for which he had done so much. He is succeeded by Baron Richthofen, who, though unconnected with special colonial questions, has had in Egypt a large African experience. Major von Wissman has brought his African career to a close after 16 years of constant travel and labour. His successor in the Governorship of East Africa is Colonel Liebert.

Progress has been made in scientific work, both in the way of exploration and of medical, botanical, and geological research. It may be confidently hoped that the results of the inquiries now zealously conducted in the German colonial establishments will be to add to the world's knowledge as to the hygienic conditions of life in tropical climates and the methods of cultivation of tropical plants.

The Imperial Chancellor has issued regulations by which strict conditions are laid down for the administration of justice by Europeans where natives are concerned, and there appears to be no room left for the abuses which had come to light in former years. A further decree has settled the conditions under which contracts can be made with native labourers, in which every regard is paid to considerations of humanity. German and foreign authorities appear to agree as to the great progress made in the suppression of the abuses connected with slavery in East Africa.

But in spite of the great progress achieved in so many departments, the German African colonies cannot be regarded as suitable for the settlement of German emigrants. As Major von

Wissman says: "Not a foot of East Africa can be regarded as healthy." In Togo, of a white population of 89, 10 died in the course of a year. Of the 2,000 white residents in South-West Africa half of that number are soldiers or officials; of the remainder more than half are foreigners. Since the German colonies were founded 1,250,000 German emigrants have settled in non-German territory, and thus have been lost to their country. Under these circumstances, the attention of colonial circles appears to be drawn more and more to the question of guiding this stream of emigration to places where the German immigrant is not at once absorbed into an alien population, and providing by an adequate navy for the maintenance of German interests over seas.

TOGOLAND.

The delimitation of the colony's boundaries is not yet complete, but in 1895 the area was given as 60,000 square kiloms. Area.

The native population, of which no census has been taken, remains, it is supposed, unaltered, although a serious outbreak of malaria took place in 1896. The population appears to change its character from time to time, in consequence of immigration and emigration, but no accurate statistics have yet been collected. Population.

The white inhabitants numbered 89, as compared with 56 in 1893, 73 in 1894, and 96 on December 31, 1895. Of these 81 are German, six French, and two English. There were 10 deaths, of which six were of invalids removed from outside the protectorate to the hospital at Little Popo.

Of the 89 Europeans, 12 are women; the six Frenchmen are all merchants; the two English are a merchant and his wife living at Lome. Of the Germans 28 are officials, 19 merchants, 23 missionaries, and 11 women.

The chief towns are the coast towns of Little Popo and Lome, and the inland market town of Kete-Kratschi. Towns. Little Popo has an estimated native population of 5,000, and Lome of about 4,000. These two have attracted practically all the trade of the interior, so that the other coast towns have lost their importance. Streets have been laid out (Lome has now 20), and solid European buildings constructed. Complaints, however, have been made lately (in the spring of 1897) that the French town of Great Popo has, owing to its good communications with the interior, absorbed a good deal of the trade of the protectorate.

The principal products of the protectorate are palm oil, coco-nuts, indiarubber, and coffee. Products. The usual tropical grains and fruits—maize, rice, cola, mango, yams, bananas, &c.—serve to feed the native population. A tree known as the "odum" produces an excellent building wood, resembling our oak in durability and hardness, but unfortunately the tree is not very common, and measures have had to be taken to prevent its destruction for exportation to the Gold Coast Colony. The coco-nut plantations

are still young; the most extensive is that at Kpeme of 27,000 trees, besides 10,000 seedlings. Details are given in the Government report of three other considerable plantations. More successful are the plantations of Liberia coffee. Six of them are mentioned—of from 33,000 to 3,000 trees—and they all show a considerable increase since last year. The Government owns a model plantation, which serves the purpose of a nursery for the cultivation and distribution of seedlings.

The cultivation of the indiarubber tree (*Manihot Glaziovii*) has made considerable progress. One plantation is mentioned of 6,000 trees. They are raised from seeds only. The growth of the tree is astonishing. In 10 months it bears seeds, which, when sown, come up in from three to four weeks. The naturalist, Dr. Woeckel, in a journey to the interior, instructed the natives in the art of cultivation of this tree, and it is, therefore, to be hoped that it will soon make progress. There is naturally as yet no yield of indiarubber from this tree. In the mountains there is a considerable amount obtained from the *Landolphia-Liane*, but this source of supply will soon be exhausted owing to the improvident habits of the natives. Another tree which supplies this article is the *Kicksia Africana*; it grows in the neighbourhood of Nkonya, where the natives have been taught to obtain the product from the tree and to cultivate. It grows from cuttings or seed.

An attempt has been made to cultivate the cocoa plant, which appears likely to be successful.

The kola-nut, which is a most important article of exchange in the interior, is being also cultivated. Dr. Woeckel has instructed the natives in several places in the art and impressed its importance upon them. A beginning has also been made with the export of the leaves of the fan-palm, 13 tons of which have already been exported for the manufacture of straw hats.

The Government gardens at Sebbe grow various sorts of European vegetables, as endives, carrots, radishes, &c. The cucumber, which appeared to be doing well, has been attacked by an insect which renders it useless. Mulberry trees appear to succeed, but they have only been planted 1½ years.

The unusually heavy rainfall of this year has resulted in a very prosperous condition of all the plantations in the protectorate. This is a welcome change after the unfavourable season of the preceding year. The season was a sickly one, probably owing to the heavy rains, and a severe epidemic of malaria had many victims, both native and European. The unhealthy months were May and June.

As described in the preceding reports, it has been found impossible to keep horses alive with the exception of a few from Lagos and the Canary Islands in private hands, which do well. It is supposed that the death of those which broke down in the interior is due to the tsetse-fly. The Government has ceased importing horses. A certain number of cattle are brought down to the coast from the interior, but, owing to the difficulties

*Manihot
Glaziovii.*

Climate.

Animals.

entailed by the passage of the Agome Mountains, not so many as could be wished. A road is now being constructed.

There appears to have been a decrease in the export trade of the protectorate since last year, except in indiarubber and ivory. The total value was estimated at 150,700*l*. The tonnage of the ships visiting the protectorate from August, 1895, to the end of July, 1896 was 302,566 (257 steamships and 9 sailing ships), of which 121 were German (143,142 register tons), 86 English (97,000 tons), and 50 French (62,259 tons). Commerce and navigation.

The caravan road to the west (or Gold Coast) side of the colony has been continued. The road, when finished, is to divert much of the trade which now finds its way via the Volta to the Gold Coast (see report for 1894-95). It was commenced in 1892 from Lome. The removal of the road-engineer to the Cameroons delayed progress, but 70 kiloms. were completed at the end of 1896. The road was also being constructed from Misahohe southwards to meet it, and the two ends of the road were only two short days' journey apart. Progress was also being made with a road beyond Misahohe, across the Agome range, which presents at present very great difficulties, and even dangers. The vital importance of roads for the commercial progress of the country is recognised, and every effort is being made to push on road-making. The former system of a 6-yard road has been abandoned in favour of the narrow track, which is in accordance with the habits of the natives. Means of communication.

On the eastern side of the littoral a road is being constructed from Little Popo to Wokatinie and northwards. It presents great difficulties, owing to the marshy character of the soil. The delimitation of the German-French boundary on this side will probably alter the conditions of trade. In the meanwhile the competition of the French port of Great Popo is a serious danger to the German coast towns, unless communication with the interior is perfected.

The road between Sebbe and Little Popo is now finished, and planted with shade trees.

The importance of the question of road-making lies in the competition of the better trade routes in the French and English protectorates.

The German schoolmaster unfortunately died and the work of the school had to be conducted by a coloured teacher; 40 boys are educated in the Government school. They are taught Bible history, German, arithmetic, reading and writing, natural history, singing German songs in three parts. Schools.

Four missions are at work in this protectorate. The Basle Mission (German Protestant) with 142 adults and 61 children on its books; the North German Protestant Mission with 848 persons on its books; the Wesleyan Mission with an average church attendance of 610, and the Catholic Mission with eight priests, 10 lay brothers and five stations, and with a school attendance of 510. The latter mission expects the arrival of sisters to look after the female converts. Missions.

Each of these societies receives a grant of 50*l.* a year and a free customs entry pass on goods imported for missionary purposes up to the value of 50*l.*

The Wesleyan Mission is under the direction of the Lagos Mission in connection with the London Society, but the one European missionary appears to be a German, and since 1892 instruction has been given in German and not in English. The mission has eight churches and four schools.

Nachtigal
Hospital.

An extension was made to the Nachtigal hospital which, unfortunately, was rendered necessary by the prevalent sickness of last season.

Administra-
tion of
justice.

A new ordinance for the administration of criminal justice, imposing severe restrictions on the powers of judges and the infliction of corporal punishment was published in March, 1896. Commoner than criminal prosecutions are the civil suits which are settled in "palavers," held at Government House on certain fixed days at which the native chiefs interested take part. The number of such cases was about 250 during the year. The number of criminal cases is not mentioned, but is said to be small.

There were six civil suits between non-natives and no criminal prosecution of a European.

Post and
telegraphs.

There is a post-office at Little Popo, with branch office at Lome. These offices are connected by telegraph wire with the French and English protectorates and thence by cable with Europe. Coloured assistants are employed as telegraphists. The protectorate receives three posts a month from Europe by the German Woermann Line, one post a month per British and African Steam Navigation Company, and one post a month overland from Quittah, in the English Gold Coast Colony, whence letters are carried by sea per British and African company.

Between the two stations, Lome and Little Popo, there is a postal service twice a week by messenger. Lome has a similar service twice a week to Quittah on the Gold Coast, and Little Popo is connected with the French Colony of Dahomey by a daily post to and from Agoué. The total number of letters sent by post to and from the colony last year was 32,236; and of telegrams, 4,954.

Relations
with the
natives.

The relations with the natives are described as peaceful. Their suspicions of Europeans are gradually being removed, and as a pleasant instance of good feeling is mentioned the fact that a chief, living at Lome, presented a valuable piece of land to the governor as a site for Government House instead of the former unhealthy situation at Sebbe. The seat of Government has in fact been removed to Lome.

Firms and
factories.

Firms and factories are established chiefly at Lome and Little Popo. At the former are nine factories and 12 native merchants, with 53 shops. At Little Popo there are established nine firms (including one native) and 25 open shops, some of which belong to native business men. Business is also brisk at the

inland stations of Misahohe, Kete-Kratschi and Sansanne Mangu.

In 1895 the last projected European building was finished at Misahohe. It is built of stone with a wooden roof. This completes the station buildings. Inland stations.
Misahohe.

The tribe of Toves was brought to order in February, 1895, which acted as a salutary warning to other tribes inclined to rebel. The most important event from the commercial point of view was the foundation of European factories at Agome and Palime, two hours' journey from Misahohe. These factories, two in number, have had a great success. A market is held there once in four days and business is brisk. Although trade to the coast has much increased, there is no difficulty in getting bearers, except in the rainy season. The establishment of the market at Palime has had the effect of diverting the trade from the interior from the English to the German coast. Formerly the trade route passed down the Volta; but it now follows the direct route via Palime to the great advantage of the protectorate. With the object of making that place still more a trade centre, roads have been constructed from Ho (2½ days' journey), from the north-west, and from Avatime. By means of these roads rubber is carried to market from the places where it is produced. The natives seem to acknowledge the benefits thereby conferred upon them; they are friendly and are easily persuaded to work on the roads.

Besides smaller journeys in the near neighbourhood of the station, the station authorities organised two more important expeditions.

The first was on the Volta which was followed from Asukoko to Deine mouth. The objects of the journey were exploration and stoppage of smuggling, as well as to open up the rich district of Buem. The second expedition was directed to Atakpame, Akposso, Kebu, and Deine, and resulted in the discovery of a district rich in indiarubber and other resources, but unfortunately infested by dangerous savages.

The plantations were further developed. Coffee was successfully grown on the neighbouring mountains and sold at the station market. Its quality was considered as equal to the finer sorts of Liberia coffee. Dr. Woeckel (mentioned above) has distributed coffee and rubber tree seed in 22 neighbouring villages. The rubber tree (*Manihot Glaziovii*) has been planted and does well.

"This station" (Kete-Kratschi), says the official report, "was originally founded for scientific purposes, but it has not existed long enough to yield very satisfactory results." From a political point of view it appears to have been successful.* The relations with the natives are good, especially with the Mahomedan traders, chiefly Haussas, and approaches have been made to the tribes in the neighbourhood. Trade is on the increase. The sudden prosperity of Kete is, according to the report, the immediate

* See for the circumstances of its foundation the preceding report.

consequence of the destruction of Salaga in the war between the former King of Pembé, Mamma, and the present King Isafa (or Kabaki). On the ruin of the town of Salaga and in consequence of the depredations of Kabaki's marauding bands, all the traders fled the place and established themselves in Kaffaba, Yeggi, Ateobu, and Kete. The former king and his followers also fled and established themselves south of the Daka. Thus it happened that Kete became an important market and that the population increased to a great extent. The use of money has commenced in this place at the rate of 1 mark to 2,000 cowries, of the mixed sort in use east of the Volta. The chief articles of trade are indiarubber, ivory, shea butter, cattle, sheep, and cloth of native manufacture. Rubber comes from Adeli in the German and Koransa in the English protectorate. A great change is noticeable, says the report, from the time when the German rubber lands were overrun with English agents who brought the German product to Addah and Accra. There is no great trade in ivory, nor is it on the increase. The report of the commander of this station points out that in spite of the destruction of Salaga, Kete is not quite secured from the danger of the competition of Ateobu, Yeggi, and Salaga, and that constant watch must be kept up if the predominance of Kete is to be maintained. The districts to the east of the mountains no longer obtain their salt supply from Kratschi, they get it from French territory up the Meno River which provides a convenient method of approaching the interior, forming for a considerable distance a cheap and natural trade route. The writer continues:—"The protectorate falls into two sections, divided by the mountain range, that to the west which is tributary to the Volta, and that to the east which in general corresponds to the Meno basin. The station of Bismarckburg, lying between the two, is, therefore, not likely to have a great commercial future. It is not to be denied that their long colonial experience, their excellent water route of the Volta, and the system of smuggling carried on in the neighbourhood of Kpandu, give the English a great advantage over German trade, but German trade has made much progress and will make more."

In conclusion it is pointed out that the natives pay much attention to the high quality of goods, and that the value of imports greatly exceeds the value of exports in these regions.

In the report of the preceding year attention is drawn to Dr. Gruner's expedition from the coast to Say on the Niger via Sansanne Mangu and Gurma.

As to the further progress of the expeditions sent out by the authorities, the report for 1895-96 gives the following information:—

As soon as the necessary preparations had been made for the establishment of the contemplated "exploration station" of Sansanne Mangu, Lieut. von Carnap, left Kratschi, accompanied by Baron Seefried. They travelled by the direct road via Bimbilla to Yendi. The friendly relations with the chiefs of this

Sansanne
Mangu.

region made in the preceding year were renewed and cemented. As, however, the Hausa bearers, who were to keep up communications between Kratschi and the contemplated station in the Soudan, preferred the route via Salaga, Lieut. von Carnap went from Yendi to Salaga, having previously made arrangements for the passage, &c., of loads through Yendi, and having left an inspector there to see that his orders were carried out. Lieut. von Seefried marched direct from Yendi to Sansanne Mangu in order to proceed at once to establish a station there. The chiefs of the neighbourhood were delighted and afforded all possible help. Lieut. von Carnap who stayed in Salaga there negotiated an arrangement between the new ruler Isafa, and the pretender Lempo (formerly resident under German protection in Kratschi) for the protection of the trade routes leading southwards to Kratschi. In order to secure the safety of the caravans passing via Salaga to Mangu from Kratschi, a farm was acquired in Salaga and some men left behind there to look after the loads, &c. The same was also done at Gambaga, to which place Lieut. von Carnap marched by Kantonga and Karga, the residences of certain powerful dependents of the Prince of Yendi. Everywhere the already existing relations of friendship were renewed. The Limam of Gambaga, with whom a treaty had already been negotiated in the eighties, expressly said that the treaty made with the chief of Sansanne Mangu applied to him, as a tributary of the Mangu chief, and there was consequently no difficulty in establishing a post at Gambaga in order to protect the important trade route from Mossi to Kratschi.

In Sansanne Mangu, where the expedition had a warm reception, Lieut. von Carnap met Lieut. von Seefried. The rains coming on, there were no important building works undertaken, but a station was founded some seven minutes' walk distant from the village at the usual resting place of the Hausa caravans. Here Lieut. von Seefried's health gave way and he had to return to the coast. Lieut. von Carnap, in order to secure the safety of the trade routes from Gurma southwards to Kratschi, made a journey to Kampela, in Mossi, Tangurku, and Pamma. In this journey he ascertained the fact that the chief, Bantschande, who made a treaty with the French, had been driven out of Fada Gurma by King Tunenturiba, of Gurma, and lives at present (end of 1896) in Mo-si. Bantschande said that Nando-Matschakuale, and not Nando-Fada-Gurma was the capital of Gurma.

Lieut. von Carnap then returned to the coast to report proceedings. On his departure he abolished the post at Gambaga temporarily, as in view of the bands belonging to Samory which had established themselves at Buale, it appeared impossible to hold the station without a stronger force, commanded by a white officer. In the same way the lager at Salaga was evacuated, owing to the renewed outbreak of hostilities. On his departure the temporary government of Mangu was entrusted to a reliable native.

The establishment of the post of Sansanne Mangu has a considerable influence on the prosperity of Kete. The trade routes from the north are thereby secured from the exactions imposed by all the petty chiefs on passing caravans and from the attacks of robbers. Moreover, the means of direct communication between Kratschi and the interior are increased. The station will serve (besides the above-enumerated and scientific purposes) to prevent any disturbances of the peace on the routes leading to Kratschi.

THE CAMEROONS.

Area.

The area is given as about 495,000 square kiloms.

Population.

In June, 1896, the white population in the Cameroons amounted to 236, an increase of six on the preceding year which itself showed an increase of one over the year before.

There were 161 Germans, 36 British, 18 Swedes, 15 Americans, three Swiss, and one Russian, Belgian, and Spaniard. The Americans, Swiss, and Russian were all missionaries or teachers; the English, Swedes, Belgian, and Spaniard were all merchants. Of the Germans, 23 were officials, 13 connected with the constabulary, 39 merchants, 34 missionaries, 11 planters, and the rest explorers, doctors, engineers, &c.

The movement of this population was as follows:—increase, 127 persons; four by birth, 123 by immigration: decrease, 121; 17 by death, and 104 by departure. The number of merchants has increased from 78 to 95 since last year.

Climate.

Observations show that the hottest month is February, with an average temperature of 27·10 C. (80·7 Fahr.), and July the coolest, 23·48 C. (74·3 Fahr.). The maximum average temperature in February was 36·49 C. (86·9 Fahr.) and the minimum average temperature in July was 71·2 Fahr.

Sanitary conditions.

Thunderstorms were frequent which, as the report states, had a certain importance from the hygienic point of view, as the Europeans, exhausted by fever and anæmia, were often deprived of their much-needed sleep by the terrific noise. Generally the storms last only two or three hours, but sometimes for six. The rainfall was 4050·3 mm. (159 inches) at Cameroon. On the northern part of the coast it was as much as 354 inches. The season was an extraordinarily unhealthy one. There were seven deaths among employés, all from blackwater fever, and 14 persons had to be given sick-leave. These were all cases of pernicious fever or severe anæmia, rendering them quite unserviceable. The number of deaths among the merchants and missionaries showed a considerable increase (10 in number). The commonest illness was malaria, and according to the Government report, the doctors have come to the conclusion that the only treatment which does any good is quinine administered in daily doses of about 1 to 1·05 grammes. On the other hand quinine seems to work injuriously in cases of blackwater fever, which

according to observation in the Cameroon hospital are more easily cured without it. Only 9·8 per cent. of cases treated in hospital died, against 43 per cent. treated outside the hospital. Vaccination with lymph sent out from Germany was attended with success, and the report states that with proper precautions, such as careful closing, the lymph could be preserved in an efficient state in a tropical climate for six weeks. It would thus be possible to send it to the interior. Cattle and sheep are imported for the use of the Europeans, and a market has been established for that purpose. European vegetables do well and are much cultivated. The white population are taking to physical exercise, such as riding, lawn tennis, and rowing with beneficial effects to their health.

A considerable advance has been made in the plantations. Plantations. Professor Wohltmann, after a careful survey, pronounced the Cameroon mountain to be admirably suited for purposes of cultivation. The report of the manager of the botanical garden shows that cocoa-trees, especially those from Trinidad, do extremely well. Trees three or four years old yield a rich harvest. Seedlings are being distributed to the various plantations. Coffee did not do so well, and the trees suffered much from the ravages of a beetle. Experiments were also made with vanilla, black pepper, cardamom, and cinnamon, as well as with fruit trees and mangos and bananas. Besides the present botanical garden it is intended to establish one on the mountains in order to experiment as to the possibilities of cultivation at greater altitudes.

Tobacco has been successfully grown and sells at a fair price. Cocoa trees have made the greatest progress, but it is feared that an insect which appeared last year will spread and do much damage.

The labour question appears to be on the road to a solution Labour. as practical experience has shown which tribes provide the best labourers. The Bakokos are the most serviceable in this respect.

Slavery has lost ground on the coast, and so far as the power Slavery. of the Government extends. The natives (and especially the Duallas) seem to adopt the point of view of Europeans in this respect with wonderful quickness, and as an instance may be cited the election of a former slave to the post of arbiter on the arbitration court composed of the most important of the Dualla chiefs.

There are two schools kept by the Government, one of which Schools. has 50 pupils, and the other 60. School-going seems popular, and the people are anxious for the establishment of another school. The pupils become teachers, office clerks, and employés in the customs. It appears, however, that school work was interrupted by the employment of the second and third classes on road-making.

The missions are said to work in harmony with the Govern- Missions. ment and with one another, and contribute greatly to the progress of the colony. The Bâle protestant mission lost in 1895 five persons, dead of fever, and ten, who had to go home on sick leave.

15 new recruits arrived to take their place. The mission consists of 22 persons. The number enrolled on the lists was in 1896, 1,307, and 1,619 children were taught in the mission schools. There is a service and a school now at 90 different places in the colony. The Baptist Mission has 33 stations, with about 2,000 regular church-goers. The schools gave instruction to 1,100 pupils against 875 in the preceding year. The yearly examinations yielded satisfactory results. The American Mission has 12 missionaries in the Protectorate. The mission has 13 schools, with 452 pupils. The society is allowed to carry on operations in the Protectorate on condition that German is taught in the schools (if any foreign language is taught), and that the society should not trespass on ground occupied by another mission. They established themselves in 1890 having left the neighbouring French Protectorate owing to regulations of which they did not approve. The Roman Catholic Mission consists of 14 brothers and four sisters under the management of four fathers. The schools give instruction to 90 children and about 600 converts have been baptised.

**Trade and
navigation.**

Trade is in the hands of seven German, seven English, and one Swedish firm, mostly at Cameroon. These firms have each various inland agencies. The value of the export trade amounted in 1895-96 to 206,566*l.*, against 204,056*l.* the year before. The chief articles of export were palm oil, palm nuts, rubber, ivory, ebony, and cocoa. Unfortunately the European prices continued very low, and trade was not really prosperous. The chief increase in the value of exports was in cocoa. There was a considerable falling-off in the value of the rubber exported. Imports amounted in value to 277,184*l.*, against 316,260*l.* in 1894-95.

The ships visiting the ports of this protectorate are 64 in number, of a tonnage of 79,441 tons, against 81 with a tonnage of 93,384 tons in the preceding year. Of these, 24 were German (29,297 tons) and 38 English (49,092 tons). The principal reason for the decrease in shipping is the amalgamation between the two English companies whose steamers hitherto plied in these waters. The diminution of imports is due to excessive stocks left over from last year. The import of spirituous liquors diminished considerably.

**Administra-
tion of
justice.**

Progress has been made with the constitution of native courts of arbitration. The Dualla tribe, which always is found in possession of houses on the river-side, and exercises, consequently, the position of middlemen, are all obliged to submit to these courts, and have one of their tribe on the Court of Arbitration to represent them. Appeal lies to the Governor, who is thus able to influence the native conception of law, and imbue the natives with European ideas.

New stations.

Two new stations have been established—one on the highest point near Elephant Lake, called after the Regent of Mecklenburg, and the other at Mpim, on the Sannaga, to serve as a support to expeditions for the exploration of the river. Unfortu-

nately it has been ascertained that the river is navigable only for a very short distance.

An Anglo-German Commission, after a short deliberation, ^{Boundary.} finished the delimitation of the north boundary of the protectorate.

The road from Victoria to Buea is now finished, and is being ^{Roads.} extended. Roads are also being made in the neighbourhood of Cameroon. The natives are charged with the maintenance of the roads, which is a difficult matter, as the tropical vegetation is hard to keep down. The wooden bridges are being replaced by iron and cement.

The year 1895-96 has seen the completion of several buildings ^{New buildings.}—the new customs office, the barracks for the constabulary, and the coal-sheds for storing coal for the use of the Government ships. The last erection is massively built, in the neighbourhood of the landing-stage, with which it is connected by a tramway. A hospital is being constructed.

Repairs to shipping can now be executed at Cameroon; for ^{Shipping repairs.} instance, to ship's boilers. A Spanish war ship came to Cameroon for this purpose. The Duallas make very good workmen. The slip is now in working order, and has already accommodated the surveying ship.

There are four principal post offices in the protectorate—at ^{Post and telegraphs.} Cameroon, Kribi, Victoria, and Bibundi. The colony is connected by cable with Bonny, on the Niger Coast protectorate, and thence with Europe. Postal communication with Europe is maintained once a month by the German Woermann Line, and once in four weeks by an English ship. The number of letters sent was about 40,000 in the course of the year, and of telegrams, 540.

The punishments on the natives were chiefly money fines, ^{Punishments inflicted on natives.} which resulted in their working, in order to get money to pay them. Imprisonment for a long term appears to be of no use, as the memory of the natives is so short they forget what brought them to prison. Jurisdiction over the natives is exercised under the conditions laid down in the new Government order (see above).

GERMAN EAST AFRICA.

The total European population is estimated at under 1,000, of ^{Population.} which about half are of German nationality, of whom 285 are Government employes, officers of police, &c. They are distributed among eight principal stations, and scattered about in the interior as missionaries, &c. Dar-es-Salam and Tanga show an increase of the white inhabitants by 51 and 40 respectively.

The area is estimated in the official statistical almanack as ^{Area.} about 995,000 square kiloms.

¶ The natural unhealthiness of the climate has been counter- ^{Climate.} acted, as far as possible, by the erection of commodious houses,

which has had the result of diminishing the mortality. But the number of cases of malaria and of blackwater fever is very great, and Europeans seem especially liable to a general collapse of the nervous system. The natives suffered much from dysentery, in consequence of the scarcity and badness of their food after the locust plague of last year. In the mountains natives and Europeans suffer from lung complaints and rheumatism. A commodious hospital has been established at Tanga, with a bacteriological institute. There are beds for eight Europeans and twenty natives. A hospital is being built at Government expense at Dar-es-Salam. An Indian gave money some years ago for a native hospital. After some delay, means have been found for the completion of the establishment, which is now open.

There were 30 deaths among the European population.

Agricultural
produce :
Native
agriculture.

The locust plague has come to an end, after doing immense damage. A disease broke out among the insects, which killed them in great numbers. Unfortunately the natives, in fear of the locusts, had, many of them, fled to the towns, leaving the fields untilled. The Government made a grant in aid. The harvest was, on the whole, satisfactory. The Government are now encouraging the natives to cultivate ground-nuts and cocoa-nuts, distributing the seeds gratis.

Cattle.

The season was favourable to cattle. A cattle-breeding farm has been established on the island of Mafia, where the conditions are favourable, and there is no danger of infection. A government veterinary inspector has arrived at Dar-es-Salam.

European
plantations.

The European plantations are restricted to the province of Tanga. Four new ones have been started since the last report—one with a capital of 75,000*l.*, and another with a capital of 15,000*l.* There are now 26 plantations in all. It appears that German capital is being attracted to East Africa, and that the Government is constantly receiving applications as to convenient sites for plantations. Large districts are still free, with good soil, and accessible by water. Of the produce of the plantations, coffee pays best. Unfortunately the "*hemileia vastatrix*" has made its appearance, but it has not yet done very much damage, and it is hoped that it will be kept in check. It is considered certain that this fungus is native to East Africa. Liberia coffee seems to be the sort which is most successful. A sugar syndicate has been started, but operations have not yet been begun. Tobacco and cotton can be grown, but have not been found to pay. Special attention is paid to indiarubber and cocoa-nuts. A company has been formed for breeding ostriches and zebras, and has commenced operations.

Labour.

The labour question, in consequence of the famine, is not so acute as it was. A certain number of Chinese and Javanese labourers are employed. The increase of the plantations will soon exhaust the supply of labour in the neighbourhood, but it has been found possible to induce some of the inland tribes, who are of very migratory habits, to come down to the sea and serve as labourers. In this manner one company engaged 1,100 men for

several years. In course of time it will be discovered which tribes are the best suited for this purpose, and it appears that in some cases the labour supplied is excellent. Pay is at the rate of 10 rs. a month for the men, and 6 rs. for the women.

At the establishment at Dar-es-Salam, the Government analyst is of opinion that the soil is unfitted for the growth of tropical plants requiring a rich and damp soil. Efforts are therefore to be concentrated on the cultivation of fibrous plants only. Vegetables of all sorts are grown with success. Bat-guano from the Tanga caves is largely used. It is not rich enough to export, but is useful on the spot. Eucalyptus does not do well; nor do palms, except cocoa-nuts, succeed.

At Karazini *Fourcroya gigantea* has been grown with success, but it is not yet known whether the cultivation will pay.

The Government establishment at Mokorro has shown that this district is admirably suited to the growth of tobacco. Efforts will be made this year to neutralise the effect of the failure of the Lewa plantation in this respect. 33 Chinese workmen from Sumatra, who are accustomed to this cultivation, have been sent for to assist at the commencement of the undertaking. For their use Mozambique pigs and European poultry have been imported, and are being bred with success. Unfortunately some of the imported labourers have suffered severely from fever.

The model farm at Usambara has been worked with a view to ascertaining whether it would be a possible neighbourhood for German colonists to settle in. Vegetables and wheat appear to thrive; but the manager, a farmer from Brandenburg, is not yet able to give a definite opinion as to the question of colonisation.

On the receipt of reports as to the discovery of gold at Usambara, the Government sent experts to examine the district, with the result that the gold-bearing quartz was found to have too poor a yield to make mining pay. Professor Janke, who had experience in Mashonaland, has been sent by a German syndicate to the Victoria Nyanza, but the result of his mission is not known. A further expedition has been sent to Trangi. The most important discovery has been that of a rich deposit of hard coal in German territory, close to the water, at the north end of Lake Nyassa.

The condition of trade was neither particularly good nor particularly bad, compared with the results of the preceding year. The balance of trade was reversed, the imports exceeding the exports.

The following table shows the trade of the last three years :—

				Value in 1,000 Dollars.		
				1893.	1894.	1895.
Imports ..	..	..	..	2,788	2,913	3,017
Exports ..	..	..	..	2,017	1,932	1,540
Total ..	..	..	..	4,805	4,895	4,557

But this result is modified if the native currency is converted into sterling, as the rate of exchange was more favourable last year, so that the figures for the last two years are:—

				Value.	
				1894.	1895.
				£	£
Imports ..	..	..	..	339,500	381,450
Exports ..	..	..	..	212,000	194,700
Total ..	..	..	..	551,500	576,150

These figures do not include the Government importations of coal, arms, and powder. The decrease of the exports is explained by the devastations caused by the locust plague; and the receipts from customs show a corresponding decrease (from 1,32,000 rs. in 1894-95 to 1,18,000 rs. in 1895-96).

Exports.

The effect of the locust plague is only too visible in the exports. The exports of rice, for instance, have decreased from a value of 156,000 dol. in 1893 to 180 dol. in 1895. On the other hand, the natives were forced by hunger to work harder, and have recourse to other sources of supply, as is shown by the increased export of indiarubber (from 232,000 dol. in 1893, to 321,000 dol. in 1895). A considerable decrease is noticeable in the export of ivory, which was valued at 692,000 dol. in 1895, against 781,000 dol. in 1893, and 873,000 dol. in 1894. The quantity exported was not much less (only 2,400 lbs.), but the fall in price was considerable (from 170 dol. to 137 dol. per frasila of 35 lbs.). In consequence, a stock of ivory remains unsold in Zanzibar from 1893. According to the report, the efforts of the Congo State and the English in Nyassaland and Uganda to divert the trade from the German coast have not been successful, partly because of the inclination of the Arabs to follow the old trade routes to Bagamayo and Saadani, and partly because the German authorities pay the caravans a bounty on exported ivory. This is well worth doing, as the money comes back to the Government in the form of duties on articles supplied to the caravans on their return journeys to the interior, and through the

increase of business. Light is thrown on the success of the English efforts to divert the trade to Mombasa by the figures of ivory exports from Mombasa to Zanzibar. These show that between 1882 and 1886 the export was valued between 19,000 and 9,000 rs. annually. Since 1888 it has varied between 36,000 and 43,000 dol.

As a natural consequence of the famine, the imports of articles of food have increased, and of articles of luxury decreased. Thus the imports of rice increased from 71,000 dol. in 1893, to 533,000 dol. in 1895, while the imports of cotton goods decreased from 1,408,000 dol. in 1893, to 1,252,000 dol. in 1895. On the other hand, the railway works at Usambara and the growth of the planting industry have led to an increased consumption of European goods, food-stuffs, and ironware. Imports.

The produce of the plantations shows an increased yield, and in 1895-96 79,420 lbs. of coffee were exported at a value of 41,220 rs. Produce of plantations.

Considerable progress has been made in regard to means of communication. The revenue cruisers "Wanei" and "Kingani," have been employed to keep up regular communication between the coast stations and Dar-es-Salam. Thanks to these two vessels, and those of the East African Line, it has been found possible to have regular communication three times a month with the northern stations, and twice a month with the southern. Dar-es-Salam has a regular service to Zanzibar four times per month. The duties of suppressing the slave trade, &c., formerly performed by the cruisers, have been transferred to all the Government vessels alike. The East African Line has two new steamers, the "Herzog" and "König," and the monthly service to Europe is now converted into one every three weeks. Means of communication.

In 1895 a committee consisting of the German East African Company, the German Bank, and members of the Foreign Office, with a grant of 15,000*l.*, took steps for the preliminary surveys for a railway to extend from the coast to the Tanganyika and Victoria Lakes. These surveys are in a forward condition, and a definite line has been decided on. But the Reichstag has not yet been asked for the necessary guarantee of interest, without which the line cannot be built. The railway.

In the meantime the already existing Usambara line has not made much progress. By January, 1896, 40 kiloms. were complete, but funds failed, and the company is chiefly occupied in maintaining or improving the line already made. The rails (15.5 kilos. to the metre) were found too light, and the sleepers of mangrove wood of small durability. Experiments are made with wood soaked with carbolineum. Metal sleepers are three times as dear as wooden ones.

Road-making is unsatisfactory. Even macadamised roads grow over almost at once, and the natives, who always walk in Indian file, keep up a track six inches wide, but nothing more. Wheeled vehicles are not in use.

In the summer of 1895, Major von Wissman took over the Government.

governorship from the acting-governor, Colonel von Trotha, but has since retired.

The financial year closed with a deficit of 11,599*l.*, owing to a considerable falling-off of revenue, which was much below the estimated amount. The actual revenue was less than the estimated amount by 41,388*l.*, and the expenditure by 29,789*l.*, leaving a total deficit of 11,599*l.* as above. It is not expected that the country will recover immediately from the effects of the famine, and the best hopes for the revenue lie in the caravan traffic.

The arrangements for the supply of porters are no longer made through private persons, but through a central agency, which has 2,000 porters at its disposition, who, after being supplied to any customer, return when their journey is done to the agency. If there is a certain prospect of employment they are kept and fed there till wanted. Otherwise they look out for employment from private persons (merchants or travellers), or work at the docks unloading ships. The arrangement is pronounced a great success.

Rupee exchange rose from 1·137 marks in July, 1895, to 1·2725 in April, from which date it fell to 1·215 in June, 1896.

The Maria Theresa dollar was still in circulation, as it was found inadvisable to proscribe it. Its importation, as that of British Indian rupees, is prohibited. It was exchangeable for rupees at the rate of 1 Maria Theresa dollar equals 1 r. 12 a. to 1 Maria Theresa dollar equals 1 r. 8 a., on account of the demand for it in Somaliland and the Benadir Coast. It is no longer accepted at public banks, or in payment of Government dues, and the report states that its circulation would be shortly prohibited. (See, for the history of this coin, Mr. Gosselin's report No. 402, 1896, page 60.)

Stations.

The body of constabulary sent to Kionga in 1894 was withdrawn as being no longer necessary. The station was transferred to Mikindini, where a customs station and building have been established.

The station on Lake Nyasa, Langenburg, has been reinforced, and turned into the capital of a district, owing to the important business conducted there with the Portuguese and the English, as well as the growing business on the lake, and the measures for the prevention of the slave trade and import of arms. It was found necessary to establish a military station at Udjiji, on Lake Victoria Nyanza, in order to watch the attempts of the Congo Government to divert the ivory trade. A new station was established at Keirenga, at an elevation of 5,000 feet, in the middle of the Wabehe country.

Government
ordinances.

Ordinances were issued for quarantine regulations, to prevent the importation of cholera from Egypt, and the prohibition of the import of brass pots, owing to the frequent cases of copper poisoning, particularly among the caravans. Regulations were also issued inflicting severe penalties on the adulteration of india-rubber, or fraud in the preparation of the rubber balls for export.

Another ordinance provided for the preservation of forests. A further one imposed restrictions on the unauthorised pursuit of big game, and established a game preserve.

It had been regarded, as a rule, that the chiefs were the ^{Land} owners of their lands and the adjoining waste districts, which ^{question.} they could sell to any purchaser, who thus entered, on payment, into full possession. This principle, however, turned out to be historically incorrect. The chiefs owned only a small portion of the country. Most of it had no owner at all. An ordinance was accordingly issued that waste lands belonged to the State. What the natives had cultivated, with a district four times its area, was reserved for the support of the natives, ownership to the rest of the country could only be obtained from the State by gift or purchase. 2,500 acres would be granted free to a bona fide colonist, and a district of 5,000 acres could be acquired by purchase, but any larger area could only be held on lease.

The East African Company, however, owns a district along the coast (besides what it holds in connection with the railway convention) which is exempt from the above regulation.

An ordinance was issued from Berlin in March, 1896 (see ^{Administra-} above, and Mr. Gosselin's preceding report, page 63), forbidding the use of any means to obtain avowals from natives other than those recognised by the German procedure, and the infliction of ^{tion of} extraordinary punishments. Regulations were issued laying ^{justice.} down the conditions for the administration of justice in greater detail than before. The district judge or commander of an official expedition has the power to try culprits, but he must call in to advise him the Wali or neighbouring chieftains. Restrictions were placed on the imposition of corporal punishment, to which ^{Natives,} Indians, Arabs, and women could no longer be subjected. The use of rods was substituted for the whip in case of persons under 16, and more than 25 blows were not allowed. Punishments in the form of fines of more than 200 rs., or imprisonment of more than six months, must be submitted for the governor's approval. No sentence of death can be carried out without the governor's consent, except in special and urgent cases, for which very strict regulations are laid down, especially as regards the presence and approval of European witnesses. The circumstances brought to light in a recent trial in Berlin have shown the necessity for such a regulation, which no doubt will put an end to any such regrettable occurrences. It is further provided that not only the governor, but also all the chiefs of districts must report to the Foreign Office four times a year on the administration of justice, for which they are responsible.

The preceding reports give full accounts of the missions in ^{Missions.} East Africa. The official report from the Governor bears witness to the spread of their influence. Of the 637 persons living on the coast, 107 are missionaries, and a large proportion of those scattered about in the interior are missionaries also. There are 45 European missionaries in the neighbourhood of Langenburg, on Lake Nyasa.

The following shows the chief missions and their fields of action:—

Tanga.—Evangelical Missionary Society (German), and the English University Mission.

Moshi.—The Catholic Congrégation du St. Esprit, and the Lutheran Leipzig Mission.

Dar-es-Salam.—The German St. Benedict Mission (Roman Catholic), the German Protestant Mission.

Lindi.—St. Benedict Mission.

Langenburg.—German Protestant Mission, and “Mission of Brothers.”

Mpapua-Tabora.—Three Stations of the English Church Missionary Society (eight English members).

In Uraumbo is the only station of the London Missionary Society.

Tanganyika.—The White Fathers, and English Church Mission.

The Government allows the missions to bring in their stores free of duty up to a certain sum, and duties to the extent of 11,000 rs. were refunded by the Government to the various societies.

Government
schools.

The Government supports schools at Dar-es-Salam, Tanga, and Bagamoyo. Reading, writing, and arithmetic are taught, tempered by gymnastics and German part songs. In addition to the children, lessons are given to the grown-up employés in the customs and post office, mostly Indians and Goanese, and to the “boys” or servants of Europeans. The Tanga school had 97 pupils in one year, and the Bagamoyo school 101 children and 62 grown-up persons. In almost every district there are Arab teachers who give instruction in the Koran, and in writing in Arabic characters. There is no doubt that these native teachers intrigue against the German schools.

Building.

Barracks for the native troops have been built at Dar-es-Salam for 172 Askari families, at a cost of 4,000*l*. A hospital was to be completed on April 1, 1897. At Tanga additions are being made to the hospital. At Bagamoyo barracks have been erected for 50 Askari. A new Government house has been erected at Mikindini at the cost of 2,800*l*., with barracks and offices.

Scientific
exploration.

Surveys have been made of the districts round Tanga and Dar-es-Salam. Meteorological observations were taken in various stations on the coast and in the interior: observations will be taken in the future on Kilimandjaro.

Constabulary.

The total number of the constabulary was 1,626 (of which 662 were Sudanese, 682 Suaheli) and of the police 303, or a total of 1,929, against 1,793 in the preceding year. Of this body 55 died in the course of the year, 25 deserted and 175 were discharged. Four companies were stationed on the coast at the principal coast stations; one at Kilimandjaro. The garrison on Victoria Nyanza was raised by 200 men in consequence of the important services which it was required to perform. One com.

pany was stationed at Tabora, the centre of the interior trade. At Langenburg a detachment of 25 Askari was stationed together with a body of irregular troops (50 men). The road from Bagamoyo to Tabora over Kilassa was guarded by two companies. There were in all 12 company stations and 3 small independent stations. A number of recruits are being trained in Dar-es-Salam, and will be shortly consigned to the companies.

The administration of the post is under the direct control of ^{Post,} the head office at Dar-es-Salam. There are 8 postal agencies on the coast, which are connected with one another by overland telegraph wires, and with Zanzibar by cable. Every 3 weeks there is a German mail steamer to Germany, besides the connections through Zanzibar by French and English packets. Communication with the interior is kept up by messenger, from Tanga to Moshi and Maranga once a month, from Dar-es-Salam to Tabora twice or three times a month. The post to Langenburg goes once in three weeks by sea to the south, then to the Steamship Company at Mozambique, which lands the letters at Chinde, thence via the Shire and Zambesi to the Nyassa by the post office of the British Central African Government, and over the Nyassa to Langenburg by the Government steamer "Wissman." The number of letters sent this long way was 6,862. The total number of letters sent was 47,347, and of telegrams 6,000.

Since 1891 letters of emancipation were given in Tanga to ^{Suppression} 718 liberated slaves, mostly fugitives from Pemba. They most ^{of slavery.} of them were given work on the plantations, or stayed as free labourers with their former masters. All the former Massai slaves have been registered, and in this manner the attempt to sell children, in consequence of famine, can be detected and punished, as the owner of an unregistered slave is at once convicted of guilt. In the district of Moshi slave hunts seem to have come to a complete end. Attempts were made in the previous year to sell slaves, but were at once detected and punished. The slaves resident in this district are either prisoners taken in war, or debtors who have been unable to pay, or children sold by their parents in time of hunger. No complaints were made as to bad treatment, and as a rule the slaves did not appear to desire manumission as slavery secured them against hunger. Escaped slaves from the coast (always Massai) were declared liberated, and settled in the neighbourhood of the station. In Pangani it is possible that a trade in slaves to Pemba and Zanzibar, by light canoes and sailing ships, may yet be carried on, but the regular slave trade has been abolished. The house slavery practised among the Arabs is of a mild description, and the master, who is not allowed to punish his slaves himself, has to bring them for correction before the judge, so that he cannot be guilty of ill-treatment. In Saadani there were issued 15 letters of emancipation, in Bagamoyo 119, in Dar-es-Salam 339, in Kilwa 483. This shows an increase on last year's return. A circular has been sent to the district officers prescribing the punishments for prosecuting the slave trade, and offering rewards for intelligence leading to the capture of slave traders.

Punitive
expeditions.

In the second half of 1895 disturbances broke out in the South, caused by the Mgao Chief Machemba and the Msuaheli Hassan bin Omar.

An expedition of four companies was sent against the latter, under Colonel von Trotha, who defeated him and took him prisoner, and captured his correspondence with his adherents. The Governor went himself to Kilwa to hold the trial. It was found that the conspiracy embraced as many as 80 chieftains, including the head of the Indian colony at Kilwa. The chief and seven of his adherents were executed, the rest fined. Machemba then submitted and came to Dar-es-Salam.

Another rebellion was on the point of breaking out in the North, under Mbaruk bin Raschid, the chief of the Msara, in Mombasa, who had withstood the English for more than a year, and was at last compelled to take refuge in German territory. There was no sufficient reason to hand him over to the English authorities, but it was in the interest of both English and Germans to disarm him. After a short negotiation he and 2,000 of his followers submitted to the Governor, surrendering their arms in return for the assurance of German protection and an establishment in the protectorate. In compliance with the wish of the English authorities he and his followers were settled at a distance from the frontier between Dar-es-Salam and Pugu.* Disturbances of a serious nature, causing loss of life and requiring great exertions to suppress, broke out in the neighbourhood of the Victoria Nyanza. The cause of these disorders was universally attributed to the execution of Mr. Stokes.

GERMAN SOUTH-WEST AFRICA.

Area. The area is officially stated to be about 835,100 square kiloms.

Population. The white population amounted on January 1, 1896, to 2,025, but has considerably increased since then, as the discharged members of the constabulary have to a large extent settled in the country.

Settlements. The male population is divided as follows: 87 merchants and men of business, 77 farmers and settlers, 109 artisans and workers for wages, 7 engineers and architects, 2 machinists, 6 managers, 5 miners, 21 missionaries. The rest are employés of the Government or members of the constabulary. The principal settlements are at Windhoek, Swakopmouth, Omaruru, Gobabis, Gibeon, Rehoboth and Cape Cross. The greatest progress has been made at Swakopmouth, the port of the colony where Government buildings and shops are stated to be springing up. At Windhoek an artillery house and a mission house have been built in the course of the year, and at Gobabis a barrack for 70 men is under

* Sir Arthur Hardinge has borne witness to the energy and courtesy shown by Major von Wissman in this matter.

construction. In the small police-stations surrounding Windhoek brick station-houses have been built to serve the colonists for a temporary refuge in case of attack. A large number of settlers (mostly discharged constabulary) have established themselves round Gobabis, which has thus become the principal post in the east of the Protectorate.

The climate is dry and this year has been an exceptionally bad one. It only rained well in the district of Otjimbingue (which is usually the worst off). The south was specially unfortunate. The consequence was great scarcity, from which natives and whites both suffered. The chiefs received grants of food instead of their ordinary pay, and food was in some cases distributed to the natives. Unfortunately the mortality among the cattle was great. The winter months were very cold. The effect of the unusual dryness on the health of the whites was good, and cases of fever were not frequent. The improvement in living accommodation has also had an excellent effect on the health of the constabulary. Climate.

Since the report was published there has been a somewhat severe outbreak of fever.

Till the customs tariff has been in force for a year (it was introduced in 1897) trustworthy statistics of trade will not be obtainable. The goods imported are of very various kinds; the export is confined to cattle, hides, horns, ostrich feathers, resin, and tanning. The export of cattle to the Cape Colony has rather diminished than increased, owing to the demand in the Protectorate caused by the reinforcement of the constabulary. Guano is worked with success. From October, 1895 (when work was begun on the deposits at Cape Cross), to July 1, 1896, 5,700 tons have been exported. The Government imposes a tax of 30 marks per ton, so that this industry is an excellent source of revenue to the colony. Seals are hunted at Cape Cross and 2,500 skins were exported, the Government charging an export duty of a mark per skin. Trade and commerce.
Export and import.

Great progress was made in the course of the year on internal trade, both in the itinerant form and in the establishment of fixed depôts and shops, to which the natives take kindly. The tax on itinerant trade brings in 325*l.* a year. Internal trade.

The Government has succeeded in establishing a system of payments in cash to the natives, and the circulation of money makes satisfactory progress. The movement of trade mentioned in previous reports continues. Bills of exchange to the amount of 55,000*l.* were drawn on Berlin, as against 9,300*l.* drawn on Cape Town. In 1893-94 nearly all the bills were drawn on Cape Town. This shows that the trade relations of the Protectorate (except in the south) are with Germany and not Africa. Money.

The number of ships frequenting the coast has increased. The Woermann Line calls once in two months at Swakopmouth. These ships have begun to call at Lüderiz Bay, making direct voyages to Germany. The German steamer "Leutwein" keeps up communication with Cape Town. Cape Cross is served Shipping.

chiefly by sailing ships which bring away the guano to Europe. Visits of German warships have been more frequent. Most of the trade of the north and centre of the Protectorate is carried on through Swakopmouth where landing is effected through Kroo-boys.

A report has been made on the possibilities of improving the harbour, which are stated to be good. It is considered that it will be found feasible to construct a mole which will make a convenient landing-place. As a consequence of the increased traffic in this place it is stated in the report that the trade of Walfisch Bay can no longer bear comparison with that of its rival.

Inland communications.

The road from Windhoek to Swakopmouth is, as described in previous reports, the important highway of the country. It is now laid out with care and is in constant use—912 waggons with 20,881 oxen passing along it in one year. The demand on the oxen is too great for the supply, and many broke down owing to the dry season. The report states that a railway or tramway is a necessity.

The question of the tramway came up for discussion in the Reichstag, but there appeared to be small prospect of the grant of a sufficient sum. A railway could not, it was said, be built at a less cost than 350,000*l.*; but it was suggested that a tramway with waggons drawn by mules should be used. Since the report was written the rinderpest has broken out and the supply of oxen, always insufficient, has failed almost entirely. Measures have been taken to construct the tramway, which has thus become absolutely necessary in order to supply the troops.

Agriculture and cattle.

The Government of the Protectorate sold in the course of last year three farms of 25,000 acres each and five of from 12,500 to 25,000 acres, situated on the eastern frontier, to German settlers. The native chiefs, especially those of Gibeon and Bethany, have also made considerable sales of land, which the Government ratified on receiving the assurance that the sale was *bonâ fide* and the price sufficient. The land which was confiscated after the war has been offered to soldiers who took part in at least one fight in lots of 12,000 acres, which, if occupied continuously for 10 years, will become the absolute property of the holder. The usual Government price is $1\frac{1}{2}$ to 2 marks per hectare ($2\frac{1}{2}$ acres). These farms are merely grazing farms. As yet it has been found impossible to grow corn failing a proper water supply. In the south dams have been erected and in this manner a sufficient water supply obtained, but in the north and east this has not yet been done. A company has been formed in Berlin for making reservoirs and digging wells in South-West Africa and has sent an engineer to the country to report. Vegetables are found to do very well. Great pains have been taken with tree planting, and fruit trees have been successfully introduced from the Cape.

The stock of cattle has been increased. Large herds have passed into the hands of whites since the war. As yet no arrangements have been made for improving the breed, which is

small; but bulls will be sent out from Germany. The price of a good draft-ox is about 8*l*.

Since the report was published rinderpest has broken out with lamentable results. The wealth of the settlers is destroyed and there is hardly any means of carrying provisions and stores. Before the outbreak there were over 6,000 head of cattle in the district of Windhoek alone. Horses do not do well in the country and mules are the only possible alternative.

The German Colonial Company for South-West Africa has established a cattle ranche, and has carried out certain improvements at the landing-place Swakopmouth, especially by introducing Kroo-boys from Monrovia who are practised in rowing through surf. The South-West African Company (with the Governor's permission) has introduced into its territory a number of Boer families who raise cattle and are occupied with the transport business. The mining surveys are finished and Dr. Hartmann, the mining engineer, has returned to Germany to make his report. Deposits of guano have been discovered near Uniab, and it is expected that further deposits will be found. A landing-place has been found near Khumib mouth. The Damaraland Guano Company has an exclusive right to kill seals and obtain guano for 10 years. It employs about 100 white people and has already exported 5,700 tons of guano. The Company is established at Cape Cross, where it has built accommodation for its employés and a condensor: no fresh water is obtainable at the Cape. The former Colonisation Syndicate has been converted into a company to which corporate rights have been accorded on its showing that it possessed 15,000*l*. capital. The Company has enquiry offices for intending colonists at Swakop and Great Windhoek. Companies.

The missions are successful with some of the tribes—*e.g.* the Nama and Mountain Damara—but are losing ground with the Hereros. The total number of missionaries is 21. They teach the natives German and industrial occupations, and have erected schools in different parts of the country. A church will be built at Windhoek for the German residents. Schools and churches.

The district to the north of Hereroland and the concession of the South-West Africa Company is now in military occupation, which has enabled the Government to stop smuggling in that district. On the north-eastern frontier military measures have been taken to provide against the importation of rinderpest; an empty zone has been established and other precautions taken, but unfortunately in vain. Ordinances have been issued for taxing itinerant merchants, and dues are levied on each waggon for the support of the roads. A sum of 1,000*l*. has thus been raised by fees varying from 2*l*. to 1*l*. per vehicle. Careful inquiry has been instituted into the various native land claims, and a settlement arrived at between the chiefs. Government.

Judicial work has increased considerably in the north—in the Windhoek district. A certain number of cases (17) between whites and natives were there decided. In the southern districts such cases have very much increased in number. Administration of justice.

Political
situation.

It was hoped that after the settlement of the trouble with Hendrik Witbooi in 1894 there would be no more disturbances, but in 1896 a dangerous insurrection broke out. As described in the previous reports, there had been considerable difficulty in keeping the Herero tribe within its territorial limits. A captaincy of the tribe under the chief Nicodemus was erected at Gobalea, but the chief in question made common cause with the discontented members of his tribe, and finally rebelled in concert with the Khana Hottentots. It was feared that the whole of the native population would rebel, but Witbooi, the Namaland chief, was again, as in 1895, thoroughly loyal. The Bastard tribe were also faithful to the Government, and some of them were enrolled for service in the constabulary, and behaved with great gallantry during the war. At the first outbreak the Germans lost two officers and six men killed, and one officer wounded. A new draft of 160 men arrived to replace the time-expired constabulary (who were kept in the country), and a further draft of 400 men (191 infantry, 177 cavalry, 20 artillery, and 14 engineers) was despatched to South-West Africa. The rebellion was put down after several well-contested actions, in which great gallantry was displayed by the constabulary and their native allies. Nicodemus and his ally Kahimena were taken and shot. The Khana Hottentots have ceased to exist as a tribe, and the country is now thoroughly pacified.

Constabulary.

The force consisted on July 1, 1896 (after the discharge of reserve men called out for the war), of 28 officers, five doctors, 906 men, and one veterinary surgeon. There is also a force of police at Windhoek consisting of one sergeant, five inspectors, and 18 policemen. Similar police detachments will be formed for service at the different district centres. The constabulary are divided into the district and field detachments. The former are assigned to the different stations, their commanders acting as semi-civil officials; the latter are concentrated under the command of the senior officer, and have purely military duties to perform.

The districts are as follows (with their garrisons):—

- (1.) Omaruru (with Okembahe): one officer, 35 men.
- (2.) Okahandja (with Great Barmen): one officer, 28 men.
- (3.) Otjimbingwe: two officers, 64 men. (This station includes Tsaobis, Salem, Uras, Swakopmouth, and Cape Cross.)
- (4.) Gobabis: two officers, 55 men. (This station includes Aais and Rietfontein.)
- (5.) Gibeon: 33 non-commissioned officers and men.
- (6.) Keetmanshoop (including Lüderitz Bay, Bethany, and other ports): one officer, 76 men.

The military detachment, or field troop, carried out several small expeditions. In August, 1895, the Governor marched into the northern district, the concession of the South-West Africa Company. The first company marched to Gobabis in March, 1896, and with three field companies defeated the allied Khana Hottentots and Hereros. It is stated in the estimates

that the extra troops will be withdrawn gradually, 200 this year and 200 next year, but the rinderpest has made this impossible as yet. Steps are also being taken (see previous report) to enroll members of the Bastard tribe, who make excellent soldiers.

On April 28 last 96 men of the South-West African Constabulary, who had served their time, arrived in Hamburg; 16 of these men, who had already served three years in Africa, intend returning to that country after they have visited their families. The commanding officer, Lieutenant Volkmann, was suffering severely from fever.

A movement has been started to induce German women to emigrate to South-West Africa, but it has not yet been very successful.

MARSHALL ISLANDS.

The area is stated to be about 400 square kiloms.

Area.

The non-indigenous population of the Islands was 98, against 119 in the year preceding. There were 80 adult males, of whom 23 were German, 11 English, 11 American, 15 Chinese, and 10 half-breds.

Population.

Complaints are made as to the loneliness and monotony of the life of the whites. The natives are occupied in collecting copra and manufacturing articles from banana leaves and in making mats. They manufacture for their chiefs; few have the right to manufacture on their own account or for the profit of their families. On one of the Islands a sort of domestic slavery exists, the conditions of which, however, have become much milder under German rule. The natives are comfortably situated, have plenty of food, and are consequently disinclined to do regular work. The chiefs do business on their own account, collecting copra and bringing it up to the capital, Jaluit, in their own schooners. A considerable immigration of labourers from the Spanish Island of Pingelab takes place.

Occupations.

Jaluit is described as a melancholy place of residence, without means of recreation and with a torrid and unhealthy climate.

The climate proved very trying, owing to the tremendous falls of rain. Influenza broke out with great severity, but no case of malaria has been observed as yet.

Health.

The principal article of produce is copra, of which an unusually fine crop was procured. New plantations of coconuts were made, and very successfully, under the authority of the chiefs, who point with great pride to this sign of activity.

Produce.

On the Island of Likieb the production increased from 149,556 lbs. in 1893 to 275,000 lbs. in 1896. The entire produce was 5,339,000 lbs., against 4,730,259 lbs. the preceding year. Gardening and cattle-raising were not attended with success. It has been found very difficult to acclimatise goats. There is hardly any good grass in the Islands, excepting at Likieb.

Two companies are established at the Islands—the German Foreign company

Foreign company

Jaluit Company and Messrs. Henderson and Macfarlane, of Australia, who export about one-fifth the quantity of copra exported by the German firm.

Visit of
warships.

Two German warships visited the Islands with beneficial effects.

Public peace.

The only incident worth notice was a sort of copra strike among the chiefs, owing to a fall in the price of copra, but business was soon resumed.

Postal
service.

Regular postal communication is kept up with Germany via the Carolines and the Philippines. Australian ships visit the quays from time to time, and schooners ply between the different Islands.

KAISER WILHELM'S LAND (GERMAN PAPUA).

Area and
population.

The area is put at 181,500 square kiloms., and the white population at 69 (of whom all but three are Germans) resident in the western district and 129 in the eastern district, among whom are 13 British subjects and 25 Chinese.

Relations
with the
Imperial
Government.

The country is administered by a company, full information as to which will be found in Mr. Gosselin's two preceding reports. Attempts have been made to induce the Reichstag to consent to the expenses necessary for a resumption of the sovereignty of the district by the Imperial Government, but the Reichstag rejected the proposals made. It is expected that new proposals will be submitted before the next Reichstag, and in the meantime a provisional arrangement has been made for carrying on the government.

Death of
Herr Ehlers.

The lamented death of Herr Ehlers, the traveller, who is widely known in the East (see preceding report), has had a new light thrown on it. It is now stated that suspicion has fallen on the native porters who accompanied the expedition. An inquiry is being instituted.

Gold
discoveries.

There have been rumours of important gold discoveries in the interior.

Expedition of
discovery.

An expedition was organised, at the expense of the Africa Fund, which penetrated the interior of the country as far as Bismarck Mountains, at the foot of which a very considerable river was discovered, navigable to the extent of 200 miles.

Miscellaneous Notes.

The Government asked the Reichstag for a grant of 402,000*l.* towards the support of the colonies, being 68,000*l.* more than the estimates for 1895-96. This demand was severely criticised by the leaders of the radical and socialist parties, who argued that the advantage to the Empire was not sufficient to justify the expense. Special reference was made to the unhealthiness of the protectorates and their unfitness for colonisation. The new Director of the Colonial Department, Baron Richthofen, replied amid the applause of the house, arguing that the commercial classes of Germany showed, by their investments of capital, their confidence in the future of the German colonies. He concluded by expressing the hope that the colonies would form in the Reichstag a neutral ground where all parties could meet in devotion to the good of the Empire. The detailed discussion turned on various points, of which the principal ones are noted below. (1) Attention was called to the cases of ill-treatment of natives connected with the names of Peters and Schröder, and information was given as to the new ordinance for the administration of justice in the colonies which was being prepared. (2) An article in the "New Review" was quoted, in which the German authorities of East Africa were accused of conniving at the slave trade, and at the illegal importation of arms. The Director of the Colonial Department, Baron Richthofen replied that the accusations dated from 1893, when they were carefully entered into and proved to be false. The refutation had been printed by the Government in the "North German Gazette." He quoted the speech of an English Bishop, who bore testimony to the great success of the German authorities in suppressing the slave trade. (3) Owing to the influence of Major von Wissman, the Budget Committee of the Reichstag granted a sum of 20,000*l.* for the purchase of a steamer for the use of the East African Government. (4) The subject of communications in South-West Africa brought on a discussion of the position of the English companies, the contracts with which were severely commented on by certain speakers. Baron Richthofen said that the companies, so far as his experience went, were raising no unnecessary difficulties, and that they appeared perfectly willing to fulfil their part of their contracts. If the Reichstag granted the Government money for railways and harbour works, his dealings with the companies would be facilitated. This, however, the Reichstag refused to do. (5) The liquor question (see below). In the third reading the only question raised was the claim of the brothers Denhardt in Witu. The representative of the Colonial Department had to defend the Imperial Foreign Office from a charge of undue partiality for England.

The sums asked for by the Government were voted by the Reichstag with few changes, and the opposition was of a mild character in comparison with previous years.

The liquor
question in
Africa.

In continuation of the notes on this question in Mr. Gosselin's reports it may be remarked that the subject occupied the attention of the Reichstag on the discussion of the Colonial Estimates. As already explained, the question affects mainly the Equatorial protectorates of Togoland and the Cameroons. A representative stated on behalf of the missions that their activity was very much impeded by the great consumption of liquors among the natives. In 1892 the total value of the import of spirits was 12·30 per cent. of the whole import of Cameroon, and in 1894 15 per cent. For Togo the percentage was 23·85 per cent. and 30 per cent. respectively. The effect of this consumption was disastrous in the extreme, amounting as it did to 16 litres per head of the population, while in Germany it was only 4½ litres per head. Under these circumstances it was argued that an increase of duty was urgently necessary. In reply Baron von Richthofen said that the petition which the speaker had quoted acknowledged on behalf of the missionaries that the Government was doing everthing in its power to stop this traffic in East and South-West Africa and in the South Sea. It was, consequently, not contested that it was only in Togo and Cameroon that the liquor question was not on a satisfactory way to settlement. The position of the Government was a difficult one in those regions, and he begged the House to remember that the duty had already been raised. (See Mr. Gosselin's report, No. 402, 1896, p. 70.) But it should also be remembered that Cameroon and Togo had neighbours, and the German Government could not raise the duties further unless the action of the neighbouring colonies gave an assurance that spirits, the importation of which through German ports was rendered difficult, did not find their way into the colony through French or English ports. "We will," he said, "do our best to come to an agreement with our neighbours for the prevention of this import as much as possible, on the understanding that the arrangement arrived at does not imply a one-sided injury to German commercial interests."

The German
Colonial
Society.

The German Colonial Society, the object of which is to further German colonial interests, numbered on April 1, 1897, 19,388 members, against 17,406 in the preceding year. There are 248 branches scattered throughout Germany, through which lectures are held on colonial or over-sea subjects, and subscriptions are collected. The principal branches are at Berlin, Hamburg, Leipzig, Dresden, Cologne, Karlsruhe, Hanover, Essen, and Magdeburg. Its revenues are derived from subscriptions (5,000*l.* per annum) and interest on capital invested in certain colonial societies (170*l.*), and its expenses are for the "Colonial Gazette" (1,400*l.*), lectures and general information (900*l.*), general purposes (880*l.*), &c.

The chief events in the course of the last year and a-half in the history of the society are the following:—

In January, 1896, a great meeting was held in Berlin on the subject of the Transvaal, in which an address of gratitude was voted to the Emperor, and a vote expressing the sympathy of the

society in any action the Government might take in maintaining the independence of the Boers.

In the same month a letter was circulated to all the branches of the society, calling attention to a speech just made by the Emperor on the subject of the duties of Germany to protect Germans settled over seas, and urging the branches to induce the Press to agitate for an extension of the navy, and also to join in petitioning the Reichstag to the same effect. The branches responded enthusiastically, and an active agitation was set on foot for the increase of the navy. The same subject was treated in a resolution passed at the general meeting of the society in April, 1896, at Berlin. Again, this year, at the general meeting held at Munich resolutions were passed for establishing an organised agitation for the increase of the navy. Pamphlets are to be printed and circulated among every class of Germans, and an agitation fund is to be set on foot. Special appeals have been made to the Press, to which ready response has been given.

A successful agitation was set on foot last year, resulting in the passage through the Reichstag of an Emigration Bill, by which the Government is empowered, in a manner, to direct the stream of emigration to those places where "not only will the emigrants find means of making their fortune, but also will be able to preserve their nationality."

In March, 1897, the Government of German East Africa issued an order containing regulations to govern contracts with labourers. It is to the following effect:—

Labour regulations in East Africa.

"All contracts of this nature to be valid must be drawn up in writing before an Imperial official appointed for that purpose. They must specify exactly the nature of the work to be done, the duration of the contract, the length of the day's work, the rate of wage, the means of transport to and from place of labourer's residence. The employer must allow two holidays per month and free medical treatment; he must keep books recording the wage paid, days of labour, and punishments. Fines are not to be imposed to an amount greater than the quarter of the wage due to a labourer, nor are advances to be made of more than half the entire wage due for the contract period. The labourer can be freed from his contract if ill-treated by the employer or by his orders. The employer is bound to send the labourer back to his home at his own (the employer's) expense."

An Imperial ordinance has been published, dated May 18, 1897, regulating the conditions of service in the colonies. Its chief points are as follows:—Service in the colonial forces counts as time served in the Imperial army or navy. Persons resident in South-West Africa, who are of an age to serve, can serve their time in the colonial force. When they have served their time they are liable to be called out for active service or the usual exercises, in the colonial force, if still in South-West Africa. Lists of all time-expired men on the reserve in South-West Africa are to be kept by the Governor.

Service in the Constabulary.

Trade in the
Cameroons.

The following are the statistics of trade in the Cameroons for the year 1896 :—

						Value.
						£
Imports	..	..	..	..	..	268,897
Exports	..	..	..	..	..	216,187

The chief articles of export were—

Articles.						Value.
						£
Palm oil	..	..	..	..	..	29,400
Palm nuts	..	..	..	..	..	64,070
Indiarubber..	..	..	..	..	..	53,700
Ivory	..	..	..	..	..	28,000
Cocoa	..	..	..	..	..	7,900

The import of textiles amounted in value to 52,000/.

The trade of Togo for 1896 was as follows :—

Trade in
Togo.

Year.						Value.	
						Imports.	Exports.
						£	£
1896	..	..	..	..	..	94,342	82,570
1895	..	..	..	..	..	..	152,400
1894	..	..	..	..	..	..	144,710

The decrease in the exports is due to an exceptionally bad season.

TRADE of German East Africa during the Year 1896.

Trade of
German East
Africa.

From—						Value.	
						Imports.	Exports.
						Rupees.	Rupees.
Germany	..	..	..	..	..	1,682,062	565,868
Great Britain	..	..	..	..	..	580,817	56,621
France	..	..	..	..	..	158,831	..
Austria	..	..	..	..	..	71,266	..
Italy	..	..	..	..	..	51,532	..
Russia	..	..	..	..	..	3,859	..
Sweden	..	..	..	..	..	14,526	854
Belgium	..	..	..	..	..	192,141	..
Switzerland	..	..	..	..	..	41,930	..
America	..	..	..	..	..	421,475	..
India	..	..	..	..	..	3,294,598	23,504
Arabia	..	..	..	..	..	214,463	16,656
China	..	..	..	..	..	33,380	..
Japan	..	..	..	..	..	8,115	..
Zanzibar	..	..	..	..	..	90,645	2,638,092
Madagascar	..	..	..	..	..	4,692	2,024
Mauritius	..	..	..	..	..	28,752	..
Rest of Africa	..	..	..	..	..	93,246	25,648
Other countries	..	..	..	..	..	22,007	674
Total	..	..	..	..	..	7,008,337	3,329,941

The principal articles of import were—

Articles.	Value.
	Rupees.
Coarse cottons	1,845,000
Coloured cottons	662,050
Other cottons	1,082,000
Agricultural implements	122,080
Petroleum	175,240
Dry fruit	122,468
Rice	629,003
Butter	148,000
Ham, &c.	158,000
Coals	175,000
Wines	216,000
Spirits	104,521
Beer	103,000
Arms	24,534
Powder	11,746

The principal articles of export were—

Articles.	Value.
	Rupees.
Manufactures of grass	51,168
Cocoanut	11,014
Hides	26,732
Tortoiseshell	26,449
Jewellery	15,740
Rubber (raw)	721,696
„ wares	140,976
Ivory (raw)	1,360,594
„ (cut)	75,611
Wood	64,593
African corn	115,825
Coffee and cacao	29,869
Tobacco	59,372

TRADE of German Colonies in 1895. (From the “Colonial Gazette.”)

EAST AFRICA.—IMPORTS.

Articles.	Value in Thousands of £.
Cotton	150
Rice	64
Iron and ironware	17
Maize	8
Butter	8
Beer	8
Petroleum	7
Vegetables	6
Meal	6
Tobacco	5
Spirituous liquors	5
Other goods	96
Total	380

EAST AFRICA.—EXPORTS.

Articles.						Value in Thousands of £.	
Ivory	..	..	..	..	..	71	
Rubber	..	..	..	..	..	38	
Sesame	..	..	..	..	..	8	
Copal	..	..	..	..	..	7	
Cocoanuts	..	..	..	..	..	6	&c.
Total	..	..	..	..	..	162	

CAMEROON.—IMPORTS.

Articles.						Value in Thousands of £.	
Textiles	..	..	..	..	..	65	
Liquors	..	..	..	..	..	47	
Salt ..	..	..	..	..	..	15	
Wood	..	..	..	..	..	14	
Iron ..	..	..	..	..	..	13	&c.
Total	..	..	..	..	..	282	

CAMEROON.—EXPORTS.

Articles.						Value in Thousands of £.	
Palm-nuts	..	..	..	..	..	56	
Indiarubber..	..	..	..	..	..	55	
Palm-oil	..	..	..	..	..	51	
Ivory	..	..	..	..	..	29	
Cacao	..	..	..	..	..	6	
Tobacco, &c.	..	..	..	..	..	3	&c.
Total	..	..	..	..	..	204	

TOGO.—IMPORTS.

Articles.						Value in Thousands of £.	
Spirituous liquors	..	..	..	..	..	33	
Cotton	..	..	..	..	..	31	
Tobacco	..	..	..	..	..	9	
Wood	..	..	..	..	..	8	&c.
Total	..	..	..	..	..	117	

TOGO.—EXPORTS.

Articles.						Value in Thousands of £.	
Palm-nuts	..	..	..	..	..	82	
Palm-oil	..	..	..	..	..	54	
Rubber	..	..	..	..	..	15	&c.
Total	..	..	..	..	..	152	

TRADE of German Empire with German Colonies.

						Value.	
						1896.	1895.
						£	£
East Africa—							
Imports into Germany	..	..	..	..	..	37,500	18,650
Exports	..	..	..	..	..	72,800	95,500
Total	..	..	..	..	..	110,300	114,150
West Africa (Cameroon, Togo, and South-West Africa)—							
Imports into Germany	..	..	..	..	..	182,550	149,650
Exports	..	..	..	..	..	250,200	171,700
Total	..	..	..	..	..	432,750	321,350
New Guinea—							
Imports	..	..	..	..	..	10,200	6,050
Exports	..	..	..	..	..	14,150	7,200
Total	..	..	..	..	..	24,350	13,250
Total trade of Germany with her colonies							
	..	..	..	..	..	567,400	448,750
Imports into Germany	..	..	..	..	..	230,250	..
Exports from Germany	..	..	..	..	..	337,150	..
Excess of exports	..	..	..	..	..	106,900	..

PRÉCIS of a Memorandum presented to the Reichstag on January 13, 1897, relative to Concessions granted to Private Companies in the German South-West African Protectorate.

The Memorandum begins by describing the origin and position of the (I) "German Colonial Company for South-West Africa," which was founded in 1885 for the purpose of taking over the rights acquired in that country by the Bremen merchant, Herr Lüderitz. The original capital of this company amounted to 40,000*l.*, and was further increased to 77,450*l.*, but owing to the

cost of various exploring expeditions, and the entire absence of any returns, it had fallen at the end of the financial year 1889-90 to 4,150*l*. Under these circumstances it became necessary for the company to sell a part of their rights. The first offer was made by a Dutch entrepreneur living in London, who proposed to form an English company with a capital of 300,000*l*. On February 25, 1890, Prince Bismarck caused this offer to be refused on the ground "that the property to be ceded to the English company was so extensive that it was to be feared that English influence would become paramount in the protectorate, and would hinder the development of German enterprise."

For similar reasons the proposals of two further syndicates of German and English capitalists were refused by Count Caprivi on September 10, 1890.

A Hamburg syndicate had meanwhile offered to found a company in Hamburg, partly with German capital, and concluded a contract to that effect on February 14, 1891, which was confirmed by the Imperial Chancellor on the 18th of that month. The purchase price of the concessions was to be 150,000*l*., the syndicate agreeing to pay 10,000*l*. to the colonial company for South-West Africa during the first year, which sum was to be forfeited to the latter if the new company was not formed before February 18, 1892. Owing to the state of the London money market, consequent on the collapse of the Argentine finances, difficulty was experienced in obtaining English capital for the purpose, and "the attempts of the Hamburg syndicate to raise the necessary capital in Germany failed on account of the reserve and complete want of interest shown by the German public." Confidence in the future of South-West Africa was at its lowest ebb in 1892, and the position had become a critical one for the maintenance of German sovereignty there.

Under these circumstances the proposals of a further Hamburg syndicate (Messrs. Wichmann and Scharlach) were received with satisfaction, and led to the formation in London of the (II) "South-West African Company, Limited," with a paid-up initial capital of 15,000*l*.

The Memorandum goes on to relate the course of the negotiations which began on November 30, 1892, and concluded by the definitive grant of a concession, on March 2, 1896, to the (III) "Colonisation Company for German South-West Africa." The object of this company is to promote the colonisation of the protectorate by German settlers.

In dealing with the (IV) "Kharaskoma Syndicate," the Memorandum first enumerates all the rights claimed by that syndicate under its treaties with native chiefs, observing that the permission to exercise these rights would have amounted to the complete surrender of that part of the protectorate to a foreign private company. The syndicate was therefore informed, when, after rendering valuable assistance to the Government in bringing the territories in question under German rule, it applied for the recognition of its treaty rights, that for the above and other

reasons such recognition was out of the question. But the syndicate, trusting to the promise given by the Imperial Government in 1889 that its rights, or the greater portion of them, would be respected, had already expended considerable sums of money in German South-West Africa. It seemed, therefore, not only just, but even necessary, in view of the above-mentioned promise, for the Government to afford some compensation to the syndicate, especially as, by the Agreement (of 1890) with the British Government, the just rights of foreigners were to be recognised. In addition to this, the natives had been in the habit of receiving considerable sums from the syndicate in consideration of the treaties granted by them. If the rights of the syndicate had not been recognised, the liquidation of the company would soon have followed, and the regular payments would have ceased; this would probably have led to disturbances among the natives, who had only just been placed under German protectorate. These and other considerations induced the Imperial Government to conclude an Agreement (October 31, 1892) with the syndicate by which a part of its claims were recognised. One of its provisions is the right of the syndicate to transfer its concessions to third parties—subject to the approval of the Imperial Government—and this right has been made use of by the cession of its rights to the “South African Territories L.” (*sic*). The recognition of the latter company by the Government is still under consideration.*

The Memorandum then deals with (V) the “Hanseatic Land, Mining, and Trading Company for German South-West Africa,” a German company established in May, 1893, and with (VI) the “Kaoko Land and Mining Company.” The latter company was constituted, through the intermediary of the South-West Africa Company, by a London firm, but has its seat in Berlin and is under German law. Its sphere of action is in the northern extremity of the protectorate, between the Kunene and Ugab Rivers.

East African Railway.

In March, 1895, a committee composed of delegates from the Colonial Department, from the German East African Company, and from the German Bank (representing a banking syndicate), met and agreed to send an engineer to East Africa to make surveys and report with a view to the construction of a railway between the lakes and the sea. The delegate accordingly went, and reported in favour of a line starting from Dar-es-Salam, thence north along the coast to Mpiyi, thence to Bagamayo (as a branch). From Mpiyi the main line should turn in a south-east direction, cross the Kingani Mountain, pass Mrogoro, and thence go west to Tabora, where the line should branch off, one branch going to

* The German Government formally recognised the privileges of the South African Territories Company on June 20, 1897.

the Victoria Nyanza, and the other westwards to Lake Tanganyika. The distances are as follows:—To Mrogoro from Dar-es-Salam, 258 kiloms.; from Mrogoro to Tabora, 775 kiloms.; from Tabora to Tanganyika, 425 kiloms.; and from Tabora to Victoria Nyanza, 280 kiloms. The estimated cost for the first 250 kiloms. (160 miles) was 10,780,000 marks (537,500*l.*), at a width of 75 centims.; the estimate for the branch line to Bagamayo was 55,000*l.*, so that the estimated cost of the line to Mrogoro with the branch would be 592,500*l.* The working expenses were estimated at 35,800*l.* per annum.

The report was sent in to the Chancellor in June, 1896, and the committee above described passed a resolution begging the Government to give its assistance either by an advance of money, or by a guarantee of interest, towards beginning the line. Nothing, however, has been heard of a Government Bill being introduced into the Reichstag, although it was rumoured that a Bill for a 3 per cent. guarantee for a company undertaking to construct the railway would shortly be submitted. In order, however, not to lose time, an engineer has been despatched to East Africa at the cost of the committee in order to perfect the plans, and get everything ready to commence work should the Reichstag pass the necessary measure, which, it is stated, will be proposed this autumn.

The present Usambara Railway is about 30 miles long, and has one passenger train a week. It is reported that money has been advanced to the company with a view to its extension. The gauge is 1 metre.

WHITE Population of German Protectorates (Statistical Year Book for 1897).

Protectorate.	Nationality.	Number.	Date.
Togo	Europeans ..	91	December 31, 1896
	Germans ..	83	
Cameroons ..	Europeans ..	236	June, 1896
	Germans ..	161	
South-West Africa ..	Europeans ..	2,025	January, 1896
	Germans ..	932	
East Africa	Europeans ..	{ 1,000	January, 1896
	Germans ..	{ 635* 507*	
New Guinea	Europeans ..	164	April, 1896
	Germans ..	97	
Marshall Islands ..	Europeans ..	65	
	Germans ..	23	
Total number of white inhabitants ..		3,581	
Germans.. .. .		1,803	
Non-German whites		1,778	

* On the coast.

Constabulary in German African Colonies.

Togo.—Germans: 1 commanding officer, and 3 non-commissioned officers; native and coloured: 150 men.

Cameroons.—Germans: 1 commanding officer, 2 officers, 1 doctor, 12 non-commissioned officers; native and coloured: 227 men (not counting native police employed at the various stations).

South-West Africa.—Germans: 1 commanding officer, 28 officers, 5 doctors, 906 non-commissioned officers and men. Provision is made for the enrolment of coloured soldiers, especially Bastards, with which tribe an arrangement has been concluded to that effect. There is also a force of coloured police.

German East Africa.—Germans: 1 commanding officer, 43 officers, 18 doctors, 109 non-commissioned officers and interpreters; coloured: 12 officers, 120 non-commissioned officers, 1,500 men. There is also a police force composed of 15 German non-commissioned officers (belonging to the constabulary), 4 coloured lieutenants, 12 coloured non-commissioned officers and 400 Askaris.

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NOVEMBER, 1897.*

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Consul Powell to the Marquess of Salisbury.

(Received at Foreign Office, October 21, 1897.

My Lord,

I HAVE the honour herewith to enclose a Report on the Association for the Promotion of Foreign Commercial Relations with Stettin, an Institution which appears--so far as I can learn--to be the only one of its kind in Germany.

I have, &c.

(Signed) WILFRED POWELL.

Report on the Association for the Promotion of Foreign Commercial Relations with Stettin.

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GERMANY.

STETTIN.

Consul Powell to the Marquess of Salisbury.

(Received at Foreign Office, October 21, 1897.

My Lord,

I HAVE the honour herewith to enclose a Report on the Association for the Promotion of Foreign Commercial Relations with Stettin, an Institution which appears--so far as I can learn--to be the only one of its kind in Germany.

I have, &c.

(Signed) WILFRED POWELL.

Report on the Association for the Promotion of Foreign Commercial Relations with Stettin.

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German
technical
education.

Much has been said and written in Great Britain on the superiority of the German technical education to that of Great Britain, and to this has been in some measure attributed the success which has attended German commercial enterprise within the last 25 years. That the technical education is better than that of England is denied by many Germans who are competent to give an opinion, having studied the subject in both lands, but what they do admit is that the application of this education in Germany is carried out to a more practical and useful conclusion than in England.

English
schools and
living
languages.

Thus, in Great Britain there are numerous public and private schools having a modern side in their curriculum, which is an excellent adaptation of what is termed in Germany the "Real Gymnasium," but in how many English schools is this modern side looked down upon by the head or high master, and consequently by the boys themselves, and the classic side held up as the education which befits a gentleman. Again, how many British boys on leaving school or the universities to face life in a business which is world wide, can speak with fluency or even tolerably any language other than their own. They have—it is true—a certain knowledge of Latin which is very useful, and a smattering of Greek, which is useful probably for the Church or in the learned professions alone, but could they proceed to France or Germany or Spain and be able to make themselves understood?

Necessity of
learning
foreign
languages.

Undoubtedly the far greater majority of British lads on the completion of their education become what is vaguely termed men of business, and at the present day it is an absolute necessity for the carrying on of that business against the keen competition—which, owing to European peace, has manifested itself in foreign lands during the last 25 years—that we, as "a nation of merchants" should be able to deal with our customers in their own tongues, and for this purpose it is of the utmost importance that the youth of Great Britain should be instructed for the most part in living languages.

Exchange of
pupils
between
English and
foreign
schools.

Will the day ever come when educational establishments in Great Britain will be able to exchange pupils with equally respectable establishments on the Continent, for it is admitted on all hands that a language can only be learned to perfection in its own country; and in time of youth, as much can be learned in one year as can be attained in three at a maturer age.

In the following report I have endeavoured to give the outline of an institution which has been established in Stettin since the conclusion of the Franco-Prussian War.

I am not aware if there is any such association existing in Great Britain—I do not think so—and if not, it is surely one that might be commended to the consideration of the Chambers of Commerce, municipal bodies, and commercial societies for their consideration, or if there be such an association, it should surely be capable of a wider extension.

Association for the Promotion of Foreign Commercial Relations with Stettin (Verein zur Förderung überseeischer Handelsbeziehungen zu Stettin).

On the conclusion of the Franco-German War there appeared every reason to believe that Europe would obtain a lengthened period of peace, and all over Germany commercial and industrial enterprise took a lively and pronounced development.

In Stettin a few leading merchants assisted by men of considerable means met to consider what steps could be taken to extend and improve the trade of Stettin with distant countries; for Stettin commerce up to that time had been for the most part confined to countries touched by the Baltic. Commencement of the Association.

The demolition of the fortifications and the prospect of large railway extension connecting with other provinces of the Empire, greatly improved the outlook of Stettin as a commercial port; it was therefore decided to start an association the aim of which should be to promote—or rather to create—Transatlantic business relations, and to place Stettin in competition with the great commercial centres of Hamburg and Bremen.

The Association was composed of 19 gentlemen, and the first meeting was held in December, 1871, and at that meeting was established the “Verein zur Förderung überseeischer Handelsbeziehungen.” Composition of the Association.

It was decided that the best and most efficacious means of increasing Stettin's trade would be:—

1. The better education of clerks and young men who had taken up commercial business as a profession. For this purpose evening classes were to be instituted, and those who attended were to be instructed in all branches of commercial education: geography and science, also foreign languages, especially English, Spanish, and French. For private study a library was to be provided. The resolutions as to the purpose of the Association.

2. The sending to the British colonies, America, and other parts of the world, well-qualified young clerks to improve their knowledge of business, and to work, at their place of destination, in the interests of Stettin trade. To carry this into effect, each young man so sent should receive a stipend not to exceed the amount of 1,500 marks, or about 75*l.*, to cover the expenses of travelling to and living for three months in the country or place to which he desires to go, and has proved his fitness to proceed.

This sum they shall not be legally compelled to refund, but shall be expected to look upon the repayment as a matter of honour, and to return it to the association, when their pecuniary circumstances permit of their so doing. Repayment of loan.

In most cases a letter is addressed to the Imperial Consul at the place or country to which the young man has departed, he also carrying a letter of introduction to the Consul, which he shall present with as little delay as possible on his arrival, thus being placed under the supervision of a recognised authority who can advise and assist him in his career. Letters of introduction to Imperial Consuls.

It is interesting to note that very few have failed to repay the loan, and of those who have so failed, the large proportion have been in consequence of death.

Progress
of the
Association.

The Association began work in 1872 with great energy, competent masters were obtained for the English, Spanish, and French languages, as well as teachers in commercial subjects, and very considerable progress was made during the first year. Two gentlemen, both of whom were experts in foreign commercial knowledge, and one of whom was himself a great traveller, placed their experience and knowledge at the service of the candidates, and the Association grew to become a most useful institution.

Meetings for
instruction.

Meetings are held in the evenings several times a month during the winter season, and the candidates are called upon to make lectures and reports upon every variety of commercial subject. I give a short list of some few of the subjects dealt with.

List of a few
of the reports
sent in.

Morocco, sugar manufacture in Germany, German and American life, insurance companies, facilitation of the corn trade, the Mediterranean, Hong-Kong, the use of shorthand writing, voyage to San Francisco, iron trade, chinine, coal, Cameroons, New South Wales, Argentine, wool-growing, Sumatra, rights and duties of clerks, Transvaal, the Jesuit Mission in Paraguay, herrings, the Straits Settlements, tobacco, my stay in Sunderland, Brazils, Rio de Janeiro, do sailing vessels pay, journeys in Norway, England's advance in India, my stay in Valparaiso, life and tobacco-growing at Sumatra, my journey to Paraguay, colonisation in sub-tropical countries, the opening of the North Pacific Railway, journey to Lagos, my stay on a coffee plantation at Princes Island, journey to Cape de Verd Islands, and very many others on equally various and useful subjects.

List of men
sent abroad.

The following is a list of the number of men sent abroad :—

Year.	Number of Men Sent.	Places to which Sent—
1872	3	Buenos Ayres, Bolivia, and Rio de Janeiro
1873	2	Singapore and Bathurst
1874	3	Santos, Buenos Ayres, and Batavia
1875	3	Bombay, Batavia, Hong-Kong
1876	5	Casablanca, Valparaiso (2), Malaga, Rangoon
1877	3	Rio de Janeiro, Valparaiso (2)
1879	3	Batavia, Buenos Ayres, and Newchwang
1880	1	Guatemala
1881	2	Valparaiso and Batavia
1882	3	Valparaiso, New York, Ascension
1883	4	Argentine, Buenos Ayres (2), Santos
1884	3	Guatemala, Valparaiso, Batavia
1885	2	Guatemala and Rosario
1886	1	Buenos Ayres
1887	2	San José de Cucuta and Singapore
1888	2	Singapore and Buenos Ayres
1889	2	Buenos Ayres and Valparaiso
1890	1	Sydney, N.S.W.
1893	1	Rosario
1894	1	Johannesburg
1896	3	Johannesburg, Guatemala, Sydney, N.S.W.

One of the principal duties of the young men sent abroad is to forward regular reports, if possible, once a month, or at the least, once every three months, in which they are desired to give a full account of what they have seen and done, and to give particulars of the commercial prospects and possible relations between their place of abode and Stettin. The most important points to which their attention is called, in making these reports, is to give details and particulars of the legislation, production, and consumption, as to prices of merchandise imported and exported, and also to give their views as to the means by which Stettin may be brought into commercial connection with the place on which they are reporting, or if there is already business connection, how this may be extended and improved.

These reports, which must be addressed to the "Vorstand" (Board of Direction), are read at the meetings, and are subjected to criticism and discussion. If they are considered of value they are printed with the annual report which is distributed to all subscribers.

Reports to be read at meetings.

I have seen many of these reports and some are excellent, showing that the writers noted with care and judgment the prospects of trade, and making frequent useful suggestions for the improvement of Stettin's trade relations, by which business men could not fail to profit. One clever report was on the trade with Johannesburg, dated 1895-96, advising Stettin business men amongst other matters to import cyanalium for clarifying gold, cloth and ready-made clothing, stating that the latter trade has hitherto been entirely in the hands of English firms, and showing how Stettin should be able to compete successfully with British exporters in cloth, &c., but adds, without giving a reason, that "an attempt to introduce German spirits would not be successful." The same report also recommends German farm labourers and artisans to come over, as they are sure to find ample employment, but cautions clerks against immigration, as large numbers are there at the present time without occupation and glad of employment as waiters.

Report from Johannesburg as an example.

Besides instruction in foreign languages (English, French, Spanish, and in some cases Portuguese) and being assisted to improvement in commercial knowledge, the candidates hear lectures and readings on all articles capable of export, of which they are expected to take notes. There is also an excellent library which is placed entirely at their disposal.

Further instruction on commercial questions.

To make the Association attractive and to strengthen the bonds of friendship amongst its members, pleasure excursions are made during the summer to places of interest in the neighbourhood.

The foregoing advantages have been fully made use of, and there can be no doubt that the large majority of those who have become members of this institution have turned out very well, and have not failed to remember the Association to which they owe their early commercial impulse. Several have shown this by substantial recognition, others by grateful letters received, and there can be no question that Stettin trade has been largely benefited by this system of emigration.

Benefit to Stettin of the Association.

Details of
statutes.

It may be interesting as well as instructive to give a few details of the statutes of the Association. As already stated the aim of this body is the extension and improvement of Stettin trade with foreign lands. Any person interested in the promotion of the scheme, may become a member on payment of 10 marks (about 10s.) annually by half-yearly payments, viz., 5 marks on January 2 and 5 marks on July 1.

Each member is entitled to attend the lectures, to use the library, to apply for a travelling grant, and to vote at the general meetings.

The Board of Direction consists of at least 10 members, elected at the ordinary general meeting, each director retaining his seat for 5 years. The same members may be re-elected at the expiration of their term of office.

The Board appoints each year—after the general meeting has taken place—from its own members the following officers: (1) a president; (2) vice-presidents; (3) a treasurer; (4) a secretary.

The Board is the representative body of the Association, and documents are considered legal if signed by the president, vice-president and two other members of the Board. The Board takes the necessary measures for instituting the courses of instruction, lectures, regulations for the use of the library, and decides with the general meeting which applicants are to receive the grants of money.

Five members of the Board form a quorum, and in case of equal voting the president shall give the casting vote.

All the members of the Board are honorary with the sole exception of the secretary, who receives a salary.

Each year the revised accounts are laid before the general meeting as well as the budget for the following year for acceptance. The accounts are examined each year by two auditors appointed at the general meeting.

The ordinary general meetings take place in the first quarter of each year.

Extraordinary general meetings are held as often as the Board consider it necessary, or if 50 members make a proper application for the same.

In case of the Association being dissolved its property shall be divided into two equal sums, one-half going to the Institute in Aid of Poor Clerks, the other half to some charity to be decided on by a general meeting.

Regulations in
reference to
the grants for
travelling, &c.

The following regulations in respect to the grants of money for travelling may be interesting:—

1. Every member of the Association is entitled to apply for a travelling grant.

2. The applicant must prove himself to be possessed of sufficient knowledge of the French and English languages, as well as being well grounded in the business language of the country to which he is going (chiefly Spanish and Portuguese). His application, in which he states the amount required, must be supported by a written or verbal recommendation from the head of the firm

in which he has hitherto been working, together with the report of the examination which he has passed.

3. The Board shall make the necessary inquiries as to the conduct, &c., of the applicant.

4. The Board shall decide on any application by a majority of votes, and shall inform the applicant of the result.

5. The grant to be advanced shall, as a rule, be only sufficient to cover travelling expenses, and such as are necessary for a stay of three months in the place to which the applicant is proceeding. The total, however, must not exceed 1,500 marks (about 75*l.*), unless a larger grant shall be allowed at a general meeting on the proposal of the Board of Direction.

6. Should the members so travelling obtain a situation before the expiration of the three months and have a portion of the grant unexpended, he will be expected to refund the amount left. The Board is not in any way bound to grant any member a second sum.

7. The Board decides in what manner the money shall be paid, whether in a lump sum, by instalments, or by letters of credit.

8. Those members who receive a grant give a solemn promise, accompanied by grasping the hand of the president, that they will conduct themselves as worthy of the confidence and trust placed in them by the Association, and that they will make every effort to obtain as much information and knowledge as possible, to be employed and utilised to the benefit of the Stettin trade. They likewise promise to send once a month, if possible, but certainly once in three months, a report to the Board of Direction on their experiences and impressions of the country to which they have proceeded, but especially to report on the commercial aspect of affairs principally under the headings of consumption, imports, exports, climate, legislation, duties, prices, and to suggest any means by which their place of resort may be brought into business relations with Stettin, or if already in connection with Stettin, how such trade as exists may be improved and extended. These reports must be read at the general meetings of the Association, and shall be subjected to discussion. They may also be printed in the proceedings of the Association if considered of sufficient value.

9. It will be held as a matter of honour that those men who having received a grant, have found a good situation abroad, and are in a position to repay the grant should do so. These repayments shall be added to the capital of the Association, from the interest of which further grants can be made to others. There is no obligation under law to repay the grants.

In concluding these remarks upon what appears to me a most excellent and valuable institution, I think that something of a similar nature might prove of value in the education of British clerks and young men who are willing to become commercial travellers; indeed it should prove most useful to any young fellow, who, without the necessary means of his own, could by applica-

Concluding
remarks.

tion obtain assistance from such an association in Great Britain, and it also appears to me that there is even room for some extension and improvement on the Stettin method; this might be brought about by a society of merchants in Great Britain.

At all events any suggestion or information which may tend to the improvement of our trade abroad (from which the foreign middleman is at present a very considerable gainer), even of an indirect nature, should not be without its value.

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G E R M A N Y.

MEMORANDUM ON

**GERMAN TRADE, JANUARY TO SEPTEMBER, 1897,
AS COMPARED WITH BRITISH TRADE FOR THE
SAME PERIOD.**

*Presented to both Houses of Parliament by Command of Her Majesty,
DECEMBER, 1897.*

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GERMANY.

BERLIN.

Sir F. Lascelles to the Marquess of Salisbury.

(Received at Foreign Office, November 8, 1897.)

My Lord,

I HAVE the honour to forward to your Lordship herewith a Memorandum which I have received from Mr. Harriss Gastrell, Commercial Attaché to this Embassy, relating to German Trade in the First Three Quarters of 1897, and a comparison with British Trade in the same period, which results in a decrease of British exports of 4,664,000*l.* over the same Nine Months of 1896, as contrasted with an increase of 3,350,000*l.* for German exports.

I have, &c.

(Signed) FRANK C. LASCELLES.

Memorandum on German Trade in the First Three Quarters of 1897 and a Comparison with British Commerce.

The statistics on the first three quarters of this year have now been published both for English and German trade; and, in view of the important commercial relations of both countries, it will be instructive to compare the net results of the nine months of 1897 for Great Britain and the German Empire before proceeding to a more detailed statement of the advance of German commerce in the three quarters.

BRITISH and German Commerce (9 months), 1897, compared.

	Value in 1,000 <i>l</i> .		Net Difference in 1,000 <i>l</i> . in Favour of—	
	Great Britain.	German Empire.	England.	Germany.
Total imports	329,958	170,924	+ 159,034	..
.. exports	175,991	133,900	+ 42,091	..
+ or — over 1896 for imports .. +	13,665	+ 13,861	..	+ 196
+ or — over 1896 for exports .. —	4,664	+ 3,350	..	+ 8,014

The figures for the German Empire are arrived at in the following way, as German totals include precious metals, which are excluded in English statistics.

GERMAN Total Trade (9 months), 1896–97.

			Value in 1,000 <i>l</i> .		
			Total.	Precious Metals.	Net Total, less Precious Metals.
1897—					
Imports			176,094	5,170	170,924
Exports			140,864	6,964	133,900
1896—					
Imports			167,117	10,054	157,063
Exports			138,190	7,640	130,550
1897 <i>v.</i> 1896—					
Imports +			8,977	..	+ 13,861
Exports +			2,674	..	+ 3,350

Comparing England and Germany, therefore, in the net improvement over 1896 figures for the similar nine months, the net balance in favour of Germany's progress is, for exportation, 8,014,000*l*., consisting of a decrease in British exports of 4,664,000*l* during this year, and an increase of 3,350,000*l* on the other hand for German exports; and, for importation, Germany has also a plus of 196,000*l*. These, it must be said, are serious figures to contemplate; and it will be an anxious question whether this large difference in total results will still further increase, or whether it will decrease by the end of the present year.

The value of the total exportation of Germany (in the nine months in question) for the past three years has been, again deducting precious metals, 120,378,000*l*. in 1895, 130,550,000*l*. in 1896, and 133,900,000*l*. in 1897. The improvement, therefore, in

these three years has been the large one of 13,522,000*l*. One of the chief points of contrast to which I would call attention in the exports of the two countries for the nine months of this year is a falling-off, valued at 4,682,362*l*, for the exportation of British "cotton piece-goods," as opposed to a gain for exports of German "cotton and cotton goods" of 335,000*l*. This figure includes cotton raw, piece-goods, yarns and hosiery. I now proceed to a detailed statement of German commerce during this year.

The increased value of importation into the German Empire in 1897 was chiefly due to the larger quantities of raw material obtained, such as cotton, hides and skins, and of wood and timber and cattle. There is an increase in cereals and other agricultural produce as a whole; chiefly in oats, barley, maize, rape-seed, &c. Machinery, coffee, rice, cocoa, oils, also show large increases. For exports, the first two quarters of the year had shown an advance of 3,721,650*l*, but, owing to the falling-off to the United States after July, the total advance on the three quarters only came to 3,350,000*l*, as is seen in the first table of this memorandum. The tonnage of exports has risen from 17,110,000 in 1895, to 18,706,000 in 1896, and to 20,083,000 in 1897. Raw sugar exports for the nine months showed an improvement of 55,186 metric tons, but in the September quarter only 30,999 were exported, and in September only 6,189, as compared with 29,532 tons in September, 1896. The third quarter of this year, compared with that of last year, shows a minus of 86,232 tons. To the United States, in the nine months of this year, 310,897 tons of raw sugar went, as contrasted with 195,211 in 1896. The following are the figures for some of the chief exports:—

GERMAN Exports (9 months), 1896 and 1897.

Value in 1,000 <i>l</i> .							
Years.		Cotton and Cotton Goods.	Leather and its Manu- factures.	Iron and Iron Manu- factures.	Silk and Silk Goods.	Wool and Woollen Goods.	Machinery, Implements, Apparatus, &c.
1897	...	8,668	5,650	11,953	5,592	12,587	6,363
1896	...	8,523	5,187	12,873	6,015	12,767	6,888
1897 v. 1896	...	+ 335	+ 463	- 920	- 423	- 180	+ 475

Here we have improvements of 475,000*l*. for machinery, implements, apparatus, &c., of 463,000*l*. for leather and its manufactures, and of 335,000*l*. for cotton and cotton goods; but, on the other hand, decreases of 920,000*l*. for iron and iron manufactures, of 423,000*l*. for silk and silk goods, and of 180,000*l*. for wool and woollen goods.

In imports the increases are, for grain and other products of agriculture, from 24,194,750*l*. in 1896, to 24,748,400*l*. in 1897. Oats, barley, and maize all show increases, but wheat a decrease from 7,083,350*l*. to 5,043,700*l*. For wheat, 63 per cent. came

from Russia last year, as compared with 53 per cent. only in 1896.

The statistics for some of the chief imports are now tabulated.

GERMAN Imports (9 months), 1896-97.

				Value in 1,000l.				
Years.				Cotton and Cotton Goods.	Silk and Silk Goods.	Wool and Woollen Goods.	Wood, Timber, and Wooden Wares, &c.*	Hides and Skins.
1897	...	...	...	12,878	5,610	16,451	10,783	7,035
1896	...	...	...	11,165	5,253	17,213	9,269	6,111
1897 v. 1896				... + 1,711	+ 357	- 762	+ 1,514	+ 924

* Including other materials for carving.

Here there is a very large decrease in importation of wool and woollen goods, valued at 762,000l., as compared with last year. When one compares this with the reduction of export of 180,000l., one naturally concludes that the home market is being more and more supplied by German manufacturers to the exclusion of foreign similar commodities.

These are the chief points of interest in German foreign trade of 1897 up to September 30.

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JANUARY, 1898.*

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GERMANY.

BERLIN.

Viscount Gough to the Marquess of Salisbury.

(Received at Foreign Office, December 20, 1897.)

My Lord,

I HAVE the honour to forward to your Lordship herewith a Despatch which I have received from Mr. Harriss Gastrell, Commercial Attaché to Her Majesty's Embassy, enclosing a Report which he has compiled from the Statement recently published by the Imperial Government on the Maritime Interests of the German Empire.

I have, &c.
(Signed) GOUGH.

Mr. Gastrell to Viscount Gough.

My Lord,

I HAVE the honour to forward to your Lordship herewith a Report on the "Sea-Interests of the German Empire," which is a précis of the interesting Statement presented to the Reichstag on the 30th ultimo, in connection with the new Navy Bill. It has been drawn up by the German Government, and affords, amongst other things, a useful and authoritative analysis of the Empire's commerce and shipping which I have here singled out as of special interest to the British public.

I have &c.
(Signed) WILLIAM S. H. GASTRELL.

Report on the "Sea-Interests of the German Empire" (founded on a Statement bearing this Title presented to the Reichstag on November 30, 1897).

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Summary.

The data, given below, afford a clear view of the enormous strides of German interests in every direction during the 26 years since the Empire was founded.

It has been by establishing productive industries that the Germans have been enabled to obtain those articles not produced at home. A continually increasing population has found continued occupation; and, by means of commerce, it has acquired the means to extend the range of obtainable commodities for large classes of the people, as is shown by the larger consumption of foreign luxuries. The population, from 1872 to 1897, had increased by 30 per cent., while foreign trade had done better and improved by 60 per cent. From 1881 to 1897 the population has increased 19 per cent., while foreign commerce has improved more than 33 per cent.

Shipping statistics show that it was principally by sea trade to foreign countries that this improvement occurred; for, from

1873 to 1895, the traffic of German ports with other States increased 124 per cent. The improvements in over-sea trade were for North America 128 per cent., for Mexico, Central and South America 480 per cent., for East and West Indies 480 per cent., for Australia 475 per cent., for Great Britain 60 per cent., and for Northern Europe 119 per cent., and for South-Western Europe 60 per cent. The great increase of this over-sea trade has been in the later years. About 65 per cent. of the whole foreign trade is by sea; formerly it was very much smaller. Its increase affords, on the one hand, a larger supply of such goods as the Germans cannot themselves produce, and, on the other, opens to the merchant and to home industry especially profitable markets. In this over-sea commerce much better profits are earned than on the sales in Europe.

Besides this, the increase of sea trade means less dependence upon the economic position of neighbouring States. A decrease in commerce in one direction can be compensated by an increase or extension in another, and particularly by seeking other new goods on sea routes. It is, for German commerce, a healthy sign that advances are being made in this sense.

Moreover, this progress implies at the same time a consolidation of internal affairs. The expansion of the large German financial bodies has made it possible to employ much less foreign capital than previously in German foreign trade. The establishment of such institutions as "over-sea banks" enables a large share in the profits of international exchange to be obtained.

There are also other things that have helped to bring about this result, such as the smaller and decreasing part now played by foreign towns in forwarding German imports and exports, the rapid increase of the strength and capabilities of the German Mercantile Marine, the rise in the proportion taken by the German flag in the ports of the Empire from 48 to 52 per cent. of the total tonnage, and the improvement from 41 to 51 per cent. of the whole steam tonnage from 1873 to 1895. In this period of 23 years the increase has been 411 per cent. for the German flag versus one of 235 per cent. for foreign vessels.

For the first time in 1896 the tonnage of German shipping at Hamburg has exceeded that of the English.* The German Mercantile Marine has, since 1871, more than trebled its capabilities; and, since 1880, has more than doubled them. This shipping is, to a great extent, now the product of German yards which have developed rapidly to suit the requirements, every day increasing, of local shipbuilding.

Briefly, in all branches of foreign trade and shipping, a prosperous development is shown not only by German statistics but also by Consular reports from foreign countries.

A noteworthy point, connected with an increased share of sea traffic in all directions, is the prosperity of the fisheries on the

* This is corroborated by the Trade Report of Her Majesty's Consul-General at Hamburg (No. 1934, Annual Series), which shows that the respective tonnage was: German 2,914,913, British 2,734,528.—(W.S.H.G.)

high seas. This, a source of riches for other nations, is now beginning to be the same for Germany, and opens possibilities of important branches of industry and of profitable employment for the increasing population. It moreover affords an excellent recruiting ground for the crews of all classes of vessels.

Wherever nations have attained prosperity and power it has been through their enterprises abroad. As once, in the 16th century, Germany enjoyed some share in over-sea trade and colonisation, so, since then, the Hanseatic towns have tried to follow the example of their neighbours in this respect. In the last 20 years or so, these prosperous business undertakings abroad have greatly increased, and Germans from all parts of the Empire share in them. In consequence the Government has greatly extended the Consular Service abroad.

These enquiries show that the maritime interests of the country are continually progressing. This expansion has enabled the rapidly increasing population to be more and more employed at home, as is shown by the decreasing emigration. The benefit conferred has not been only for the merchant, but has equally extended to all classes of the population. Any interruption of it would injure everyone whatever his standing might be.

There is only one possibility of such an interruption arising, and that is on the side of the Navy and armaments necessary to international competition. It has been shown that the preparations of Germany in this direction are behind those of other Powers, although the economic interests of the Empire by sea have developed more rapidly than those of any other nation.

It has been the experience of all ages that Navy and mercantile marine must work together, and that they are so closely connected that any neglect of the one will have a correspondingly evil effect on the other. A strong Navy is not only an important factor in representing the country's status abroad, but also gives a great impetus to German shipbuilding.

Part I.—Population, Immigration, and Emigration.

Population.

In 1871 the population of the German Empire was 40,997,000, which, during the 26 years of its existence, that is up to 1897, had increased to 53,324,000. Taking the years 1873 to 1895, for which period shipping figures are available, we find that the population increased by 10,400,000, or 25 per cent. From 1873 to 1884 it rose by 4,800,000 people, or 11 per cent.; and from 1884 to 1895 by 5,700,000, or 12 per cent.

Correct comparisons with the development of foreign trade can only be made since 1880, and, indeed, with regard to the addition of Hamburg, Bremen, &c., to the Customs Union in 1888, separate periods of 1880 to 1888 and of 1889 to 1896 must be considered. For the former period the increase in population was 3,100,000, or 7 per cent., while for the latter it was 3,900,000, or 8 per cent.

The excess of births over deaths has been greater than the **Births,** rate of increase of the population quoted above. The average for **deaths,** 1871-80 was 511,000; for 1881-90, 551,000; for 1891-95, **immigration,** 660,990; and for 1896 about 816,000. The number of immigrants **and** is not ascertainable from year to year; but the number of foreign **emigration.** subjects resident in the Empire, according to the census, was in 1870, 207,000 people; in 1880, 276,000; in 1890, 433,000; and in 1895, 486,000. The excess of emigration over immigration is given as 79,000 yearly from 1871-80, as 132,000 from 1881-90, and as 88,000 from 1891-95. Even in the years of the greatest emigration (1881-90) the increase in population has been far more rapid than the decrease by departed emigrants. This emigration in 1871-80 carried off only 15 per cent. of the surplus births; in 1881-90, 24 per cent.; and in 1891-95, 14 per cent.

The emigration can only be followed to that portion going to **Emigration,** countries beyond the seas and not to European nations; and the **general.** numbers of those leaving Europe do not tally often with the statistics of the lands to which they emigrate.

RETURN of German Emigrants. (Quinquennial Averages.)

Years.						Number of Emigrants.
1871-75	..	..	..	..	..	78,842
1876-80	..	..	..	..	..	47,480
1881-85	..	..	..	..	..	171,868
1886-90	..	..	..	..	..	96,996
1891-95	..	..	..	..	..	81,297
Single year, 1896						33,824

Emigration was at its highest point in 1872, after the Franco-German war, with 129,736, and fell steadily after that up to 1880, when the period of prosperity in the United States occurred. In 1880, 116,947; in 1881, 220,798; and in 1882, 203,459 left Germany. Since 1891, with 120,089 emigrants, the figures have again tended to a regular decrease and fell as low as 33,824 in 1896. The chief emigration is to North and South America.

EMIGRATION to Chief Countries. (In Quinquennial Periods.)

Emigration to chief foreign countries.

Years.						United States.	Canada.	Mexico, Central and South America.
1871-75	..	..	..	..	..	74,737	185	2,845
1876-80	..	..	..	..	..	43,822	75	2,345
1881-85	..	..	..	..	..	166,500	536	2,824
1886-90	..	..	..	..	..	91,950	239	2,742
1891-95	..	..	..	..	..	75,118	2,256	2,820
Single year, 1896						29,007	684	2,519

The percentage of the emigrants to the United States compared with the total emigration was in the above quinquennial periods 94·8 per cent., 92·3 per cent., 97·2 per cent., 94·8 per cent., and 92·4 per cent. It is particularly to be noticed that to Canada the percentage was merely 0·2 per cent. up to the last 1891–95 period, in which it suddenly rose to 2·8 per cent. of the whole. There is also a steady small increase of emigration to Africa, Asia, and Australia.

Part II.—Foreign Trade.

Alterations in statistics.

The German Statistical Bureau was founded in 1872; but it was only by the Law of July 20, 1879, that imports and exports were fully brought under statistical control. Since 1880, also, a much more careful system of valuation for both has been in force. Moreover, before then, imports and exports were not classified according to countries of origin or destination, but merely according to the frontiers over which they were directly imported. So

Annexation of Hanse towns, &c.

that up to 1880 detailed comparisons are not possible. But, again, in 1888 (October 15) there is another break in continuity owing to the accession of Hamburg, Bremen, and other Prussian and Oldenburg territories to the Customs Union of Germany. From 1880–88, according to values, the importation from German territories outside the Customs Union ("Zollausschlüsse") on the Elbe and Weser averaged 17·3 per cent. of the total imports into the "Zollverein" and the exportation from them averaged 23·4 per cent. of the whole exports of the Customs Union. But, since the annexation, the importation from the free harbour districts at Hamburg, Geestemünde, and Bremen in 1889 only amounted in value to 1·3 per cent. of the total imports and the exportation to 3·2 per cent. of the total exports. In 1896 the imports from the free harbour of Hamburg only came to 0·3 per cent., and the exports to 1 per cent. of the German "special trade" returns. In these figures are included the values of those articles produced in the "free" district either for consumption or "working-up." The changes effected by the increased district of the Zollverein cannot be given in detail. An exact comparison of trade is only to be given from 1889.

Trade via other countries.

It must also be remembered that Germany has many neighbours with complicated traffic systems which often tend to conceal the real destination and origin of goods. This is especially the case in exports to or imports from France and Belgium, and more particularly impairs the reliability of statistics on trade with Great Britain.

German "Special trade."

Since 1872 the statistics of German special trade have been kept; that is to say of imports for home consumption and of exports of domestic produce.

[Note:—German trade from 1872 to 1896 has to be divided into three distinct parts not comparable with one another, on account of the changes made in the statistics, &c., as mentioned above, shown below by double lines.—(W.S.H.G.)]

RETURN of Special Trade of German Customs Union, 1872-96.

"Special trade" of Germany, 1872-96, quantity and value.

Years.	Imports.		Exports.		Totals.	
	In Thousand Tons.*	In Million Marks.	In Thousand Tons.*	In Million Marks.	In Thousand Tons.*	In Million Marks.
1872	13,352	3,464	10,049	2,492	23,401	5,955
1879	16,660	3,888	15,416	2,820	32,076	6,708
1880	14,171	2,859	16,401	2,946	30,572	5,806
1888	21,867	3,435	20,740	3,352	42,608	6,788
1889	26,611	4,087	18,292	3,256	44,904	7,343
1890	23,142	4,272	19,865	3,409	43,007	7,682
1891	29,012	4,403	20,139	3,339	49,152	7,743
1892	29,509	4,227	19,891	3,150	49,401	7,377
1893	29,815	4,134	21,861	3,244	51,677	7,378
1894	32,022	4,285	22,883	3,051	54,906	7,337
1895	32,536	4,246	23,629	3,424	56,165	7,670
1896	36,410	4,558	26,719	3,753	63,129	8,311

* All in metric tons.

Note.

[Converting to sterling roughly at 20 marks to 1*l*. we obtain from the German table above, which includes precious metals, specie, &c., the following net results in sterling and quantity.

German "special trade" converted to pounds sterling compared with quantities.

GERMAN Special Trade, 1872-96, in Sterling.

Years.	Imports.		Exports.		Totals.	
	In Thousand Tons.*	In Million £	In Thousand Tons.*	In Million £	In Thousand Tons.*	In Million £
1872	13,352	173.2	10,049	124.6	23,401	297.8
1879	16,660	194.4	15,416	141.0	32,076	335.4
1879 v. 1872 ...	+ 3,308	+ 21.2	+ 5,367	+ 16.4	+ 8,675	+ 37.6
1880	14,171	142.9	16,401	147.3	30,572	290.3
1888	21,867	171.7	20,740	167.6	42,608	339.4
1888 v. 1880 ...	+ 7,696	+ 28.8	+ 4,339	+ 20.3	+ 12,036	+ 49.1
1889	26,611	204.3	18,292	162.8	44,904	367.1
1896	36,410	227.9	26,719	187.6	63,129	415.5
1896 v. 1889 ...	+ 9,799	+ 23.6	+ 7,427	+ 24.8	+ 17,226	+ 48.4

* Metric tons.

This table is inserted to give the reader an idea of the sterling value of German trade and to compare the net results for each of the three periods.—W.S.H.G.]

The German figures converted to sterling give the following results: for 1872-79 a rise of 37,600,000*l*. for total trade, 1872 to 1896.

being for imports an increase from 173,200,000*l.* to 194,400,000*l.*, and for exports from 124,600,000*l.* to 141,000,000*l.*; for 1880-88, a rise of 49,100,000*l.* for total trade, being for imports an increase from 142,900,000*l.* to 171,700,000*l.*, and for exports from 147,300,000*l.* to 167,600,000*l.*; and for 1889-96 a rise of 48,400,000*l.*, being for imports an increase from 204,300,000*l.* to 227,900,000*l.* and for exports from 162,800,000*l.* to 187,600,000*l.* The increases in number of metric tons was, in the three respective periods named: for imports, 3,308,000, 7,696,000, and 9,799,000; for exports, 5,367,000, 4,339,000, and 7,427,000, making for total trade, 8,675,000, 12,035,000 and 17,226,000.

Percentages
of increase of
foreign trade.

The increases of tonnage in 1872-79 are 8,675,000 (3,308,000 for imports and 5,367,000 for exports); in 1880-88, 12,035,000 (7,696,000 for imports and 4,339,000 for exports); in 1889-96, 17,226,000 (9,799,000 for imports and 7,427,000 for exports).

The percentage of increase of total trade in 1872-79 is 13 for value and 37 for quantity; in 1880-88, 17 for value and 39 for quantity; in 1889-96, 13 for value and 38 for quantity. The improvement in the three periods for imports was respectively 12, 20, and 12 for value and 28, 54, and 37 for quantity; and for exports respectively 13, 14, 15 for value and 53, 26, and 41 for quantity.

These figures show the steady increase of the quantity of imports and exports in comparison with the value, which latter has been affected, as is well-known, by the falling prices of all articles.

An attempt has been made after making due allowances for various differences, to calculate the real progress of trade continuously and through the three periods given above, with the result that it is estimated that from 1872-96 the special foreign trade of the German Empire increased by 60 per cent., and that from 1881 it has risen by 33½ per cent.

In dealing with the figures for "general" total trade, it must be remembered that up to 1884 inclusive, the value of the "Veredelungs Verkehr" (improvement traffic) was not included, and that since 1890 the value of the transit trade (Durchfuhr) is no longer given, so that comparisons can only properly be made by quantities in periods covering those years. The results for general trade in quantities is as follows: for the years 1885-88 and 1889-96, the only comparable ones, for imports an increase of 5,200,000 metric tons or 25 per cent. from 1885-88, and one of 10,000,000 or 33 per cent. from 1889-96; and for exports an improvement of 2,200,000 or 12 per cent. in the first period, and one of 7,800,000 or of 26 per cent. in the second.

Proportion of Sea-borne Trade to the whole Foreign Trade.

What exact proportion sea-borne trade bears to the whole is not directly ascertainable, nor is it possible to say what may be the whole amount of German goods imported or exported via

German ports or through those of France, Belgium, and Holland. One difficulty is the fact that the Hamburg Free Harbour does not make a distinction between those goods merely brought in there for re-exportation and those either entering or leaving the Empire in the ordinary course of German import or export trade. Nevertheless for the future approximate calculations can be made. It is evident that to countries outside Europe and beyond the seas trade must be by sea either directly or indirectly. This is also the case with trade with England. Then the commerce with Scandinavia, Spain, Portugal, Italy, and the Balkan States is principally by sea. Large portions of goods also go to Russia, France, Belgium, Holland, and, lately, to Austria (Trieste) by sea.

Table No. 1 (page 23) shows that in 1896 the proportion of special trade falling to countries outside Europe and beyond the seas is 2,367,900,000 marks (118,395,000*l.*) or 28·5 per cent. of the total special commerce, being 1,531,300,000 marks (76,565,000*l.*) or 32·9 per cent. of the imports and 836,600,000 marks (41,830,000*l.*) or 22·2 per cent. of the exports. To Great Britain and Ireland there went 1,362,500,000 marks (68,125,000*l.*) 16·4 per cent., being 647,400,000 marks (32,370,000*l.*) or 14·2 per cent. of the imports and 715,100,000 marks (35,755,000*l.*) or 19 per cent. of the exports. Then to these extra-European lands and England must be credited the figures of the Hamburg free port, i.e., 55,100,000 marks (2,755,000*l.*), to which must be added also those of the not specially mentioned countries with about 18,000,000 marks (900,000*l.*).

Finally those European countries classified under Group III in the table must be considered as having principally a commerce by sea with Germany, and their trade amounts to 897,400,000 marks (44,870,000*l.*) or 10·8 per cent. of the whole special trade, being 461,700,000 marks (23,085,000*l.*) or 9·9 per cent. of the imports and 435,700,000 marks (21,785,000*l.*) or 11·6 per cent. of the exports.

Therefore German commerce by sea may be credited with a total sum of 4,653,600,000 marks (232,680,000*l.*) or 56 per cent. of the total special trade, being 2,627,100,000 marks (131,355,000*l.*) or 58 per cent. of the imports, and 2,026,500,000 marks (101,325,000*l.*) or 54 per cent. of the exports. If to this is added only one-sixth of the 3,658,200,000 marks (182,910,000*l.*) trade with neighbouring countries, or 600,000,000 marks (30,000,000*l.*) for direct sea traffic and indirect sea trade via France, Belgium, and Holland, there is an additional amount of 7 per cent. for our sea-borne trade which, doubtless, is over three-fifths and is probably close on two-thirds of the whole German special commerce. And this calculation omits to take any account of the amounts not to be ascertained in the direct and indirect general trade. The enormous increase of sea-borne trade is, however, best seen from Hamburg and Bremen statistics.

In Hamburg the improvement from the 1871-75 period to 1896 was, by sea, for imports 839,000,000 marks (41,950,000*l.*), or about 100 per cent.; and for exports 842,000,000 marks

Proportion of trade falling to extra-European countries.

Proportion of trade falling to European countries.

Total of German sea-borne trade.

Improvement of trade at Hamburg, 1871-96.

(42,100,000%), or 140 per cent. Together, the increase is 1,681,000,000 marks (84,050,000%), or about 110 per cent.; whereas the improvement for "special" trade was only about 60 per cent. The quantities in the same period more than trebled, and rose from 3,100,000 to 10,300,000 tons.

Change in
sea-borne
trade with
England.

The change in the trade with England is particularly noticeable, as will be seen from the following table:—

HAMBURG'S Sea Trade, 1871 to 1896.

Districts.	Value of Imports in Million Marks.				Value of Exports in Million Marks.			
	1871-80.	1881-90.	1891-96.	1896.	1871 and 1872-80.	1881-90.	1891-96.	1896.
From countries outside Europe	262.1	423.6	875.9	958.7			550.0	664.7
From Great Britain and Ireland	473.6	418.5	391.5	409.9		not given.	387.0	382.8
From the rest of Europe ..	138.9	203.7	291.7	344.5			330.2	391.7
Total	874.6	1,045.8	1,559.1	1,713.1	597.1	981.4	1,267.2	1,439.2

This shows that, whereas the value of the imports from extra-European States rose from the period 1871-80 (average) to 1896 by nearly 700,000,000 marks (\$5,000,000L.), or 350 per cent., and those from the rest of Europe improved by nearly 150 per cent.; the value, meantime, of imports from the United Kingdom fell by some 60,000,000 marks (3,000,000L.), or one-eighth. For exports, figures since 1889 only are available. In that year the value of the exports to extra-European countries was 542,000,000 marks (27,100,000L.), those to the United Kingdom 395,000,000 marks (19,750,000L.), and to other European States 269,000,000 marks (13,450,000L.). Up to 1896, therefore, the first rose by more than 120,000,000 marks (6,000,000L.), the second by 130,000,000 marks (6,500,000L.), and the third (to Great Britain), on the other hand, decreased by 12,000,000 marks (600,000L.). In the short space of seven years the exportation to extra-European lands improved by 18 per cent., that to the rest of Europe (excepting the United Kingdom) by over 30 per cent., while that to Great Britain fell 3 per cent. From 1871-80 more than half the imports at Hamburg were from England; in 1896, they no longer formed even a fourth part. In 1896 a quarter only of the Hamburg exports went there.

In weight of goods, the tonnage of English imports, 1871-80, was (at Hamburg) nearly two-thirds; in 1896 it was only one-third; that of exports to England in the former period was over one-half; but last year fell to one-quarter.

Trade of
Bremen.

The trade of Bremen shows somewhat similar results. The share of Great Britain in the imports there fell from 16 to 6 per cent. from the period 1872-76 to 1892-95, and in the exports from 5 to 4 per cent.

Foreign Trade and its Relation to German Production and Consumption.

Foreign trade
and its
relation to
German
production
and
consumption.

For "special" trade the total imports of the German Customs Union averaged in 1881-83, 3,148,500,000 marks (157,425,000L.), and in 1894-96, 4,363,000,000 marks (218,150,000L.). These figures apparently show a rise of 1,214,500,000 marks (60,725,000L.).

The total exports in these same periods amounted to 3,206,400,000 and 3,408,800,000 marks (160,320,000L. and 170,440,000L.) respectively, with an apparent increase, therefore, of 202,400,000 marks (10,120,000L.).

The corresponding figures, excluding precious metals, specie, &c., stand thus:—

Averages of Years.	Imports.		Exports.	
	In Million Marks.	In Million £	In Million Marks.	In Million £
I. 1881-88	8,117.4	155.8	8,144.3	157.2
II. 1889-96	4,121.8	206.0	8,867.2	168.8
Increase	1,004.3	50.2	122.9	6.1

In these and all other following figures it must be remembered that on October 15, 1888, the former "Zollausschlüsse" (Hamburg, Altena, Bremen, &c.) on the Elbe and Weser were incorporated in the "Zollverein," which implied an increased market for imports and a narrower one for exports. The 1889 and subsequent import figures have, therefore, risen; while the export ones have fallen relatively. But, even taking into account this change, the figures show an enormous development, which we will now examine more closely, and, therefore, divide the commodities of foreign trade into two classes, raw materials and manufactured articles.

Special notice should be paid to the great variations in the movement of the precious metals which in 1881-83 averaged 31,000,000 marks (1,550,000*l.*) for imports, and 62,100,000 marks (3,105,000*l.*) for exports, and in 1894-96, 241,200,000 marks (12,060,000*l.*) for imports and 141,600,000 marks (7,080,000*l.*) for exports.

For raw materials (in which cattle and living animals are included) comprising also roughly worked articles of the metal, wood, carving and plaiting industries, the value of total imports in 1881-83 averaged 2,076,300,000 marks (103,815,000*l.*), and in 1894-96, 3,010,000,000 marks (150,500,000*l.*), being an increase of 933,700,000 marks (46,685,000*l.*) for the period. On the other hand, the value of the exports of raw materials in these two periods was, respectively, 938,800,000 marks (46,940,000*l.*) and 827,400,000 marks (41,370,000*l.*), being a decrease of 111,400,000 marks (5,570,000*l.*) for the same interval.

The contrary movement is found for manufactured articles. Here the value of the exports in 1881-83, averaged 2,205,500,000 marks (110,275,000*l.*), and in 1894-96 2,439,800,000 marks (121,990,000*l.*), or a rise of 234,300,000 marks (11,715,000*l.*); that of imports in the former period averaged 1,041,200,000 marks (52,060,000*l.*), and in the latter 1,111,800,000 marks (55,590,000*l.*) being, however, a very small increase of 70,600,000 marks (3,530,000*l.*).

These statistics show the changed character not only of the foreign trade, but also of large portions of the conditions of the home production and consumption. The conversion of Germany from an exporting to an importing wheat country only dates from the years 1881-83.

The rising importation of raw materials on the one side and the increasing exportation of manufactured articles on the other proves the rapid development of German industries, and the everyday increasing independence of the Empire on foreign markets for the sale and supply of raw materials. The increase of 70,600,000 marks (3,530,000*l.*) in imports of manufactured articles (apart from the influence of the accession of Hamburg, &c., to the "Zollverein") is explained by the increased capacity of consumption of the German population. For, on the one hand, there is a continually increasing importation which is larger than the mere figures here show, because of continually falling prices; while, on the other hand, the home markets for industrial produce have certainly largely extended as is proved by those branches of statistics of production which are regularly collected.

Consumption,
per head of
population of
chief
necessities.

Thus the consumption of sugar per head of the population has increased from 7·7 kilos. (17 lbs.) in 1886-87 to 12·7 kilos. (28 lbs.) in 1895-96; that of beer has risen from 84·9 litres. (18·6 gallons) in 1881-82 to 115·7 litres (25·4 gallons) in 1895-96; that of cotton has developed from 2·86 kilos. (6½ lbs.) in 1876-80, to 3·34 kilos. (7½ lbs.) in 1881-85, and to 4·95 kilos. (11 lbs.) in 1891-95, and stood at 4·85 kilos. (10¾ lbs.) in 1896. The consumption of coal in 1881-85 was 1,445 kilos. (1 ton 8½ cwts.); in 1895 it had risen to 2,028 kilos. (nearly 2 tons); that of iron in the same interval had increased from 74·2 kilos. (1 cwt. 51 lbs.) to 104·1 kilos. (2 cwts. 5 lbs.).

The quantities of grain and potatoes consumed per head of population are shown in the following table:—

CONSUMPTION per Head of Population.

Years.	Grains.								Potatoes.	
	Rye.				Wheat.		Barley.		Oats.	
	Kilos.	Lbs.	Kilos.	Lbs.	Kilos.	Lbs.	Kilos.	Lbs.	Kilos.	Lbs.
1879-84 ..	121.0	266.2	51.6	113.5	46.6	102.5	82.1	180.6	339.9	747.78
1894-95 ..	128.5	282.7	74.4	163.6	64.6	142.1	95.0	209.0	444.5	977.9
1895-96 ..	123.6	271.9	74.4	163.6	58.5	128.7	91.8	201.9	492.8	1,084.1

A table is next given of imported articles for food purposes which have largely increased in the consumption of the people.

IMPORTED Foods. Consumption per Head of Population.

Years.	Salted Herrings.	Raw Coffee.	Cacao in Beans.	Southern Fruits.	Tea.	Rice.
	Kilos.	Kilos.	Kilos.	Kilos.	Kilos.	Kilos.
1876-80	2.38	2.33	0.05	0.61	0.03	1.66
1881-85	3.01	2.44	0.06	0.75	0.03	1.81
1891-95	3.74	2.41	0.16	1.39	0.05	2.49
1896	3.45	2.46	0.23	1.97	0.05	2.41

These two tables show a considerable improvement in conditions of many classes of the people.

Imports,
chief kinds of,
increasing or
decreasing.

Turning to the classes of goods imported and exported in the periods dealt with we find, for the former, large increases as regards raw materials for seeds and plants for crop, fodder, and gardens, &c., residue of various kinds, manures, various animal products, fuel, food, fats and oils, mineral oils, the raw materials of chemical, pharmaceutical, asbestos, stone, clay, glass, metal, wood, carving, plaiting, paper, leather, oilcloth, skin, indiarubber, textile, clothing, and felt industries. The importation of roughly prepared materials for the metal industries increased but little. No class of raw materials shows a decrease in importation, whether for industrial or agricultural purposes.

For manufactured articles, the great increases in imports are in the food, asbestos, stone, clay, glass, wood, carving, plaiting, machines, implements, and apparatus branches of trade, and in works of art and literature. Small is the increase in importation of manufactures of the metal, leather, oilcloth, skin, indiarubber, railway rolling stock, upholstered carriage, and furniture industries, and in that of hardware, ornaments and toys. The imports of manufactured articles of the textile, felt, ready-made clothes, fats, oils, and mineral oil industries have considerably decreased; and that of the chemical and pharmaceutical branches has also decreased.

This statement shows which home industries have had the greatest success in competing with foreign manufactures.

Exports,
chief kinds of,
increasing or
decreasing.

Turning now to exports we find for raw materials a large increase in seeds and plants for crops, fodder, gardens, &c., manures, and various animal products—that is, important agricultural products in addition to those of mining and smelting works, such as fuel, roughly prepared metal materials, and finally raw stuffs for the indiarubber trade, in which Germany is not the producer but merely the middleman. The exportation of the materials of the chemical and pharmaceutical, wood, carving, plaiting, paper, and leather trades has slightly improved; that of fat, oils, mineral oil, asbestos, stone, clay, glass, metal, and textile has slightly decreased. The exports of the raw materials of food, and the partly prepared objects of the wood, carving, and plaiting industries have largely decreased.

For manufactured articles exported, there is a large increase in the chemical, pharmaceutical, asbestos, stone, clay, glass, metal, wood, carving, plaiting, paper machinery, and hardware industries, as also for works of art and literature. The exportation of indiarubber goods only improved slightly; but that of the food, fat, oils, mineral oil, leather, oilcloth, skin, railway rolling stock, upholstered carriages and furniture trades fell slightly.

Part III.—Shipping.

Uniform statistics on shipping are available since 1873; but certain shallow-water traffic on the coasts was not included till 1879, so that it is only since then that comparison can be strictly made. Subject to some variation on this account, the total number of ships entering and leaving German ports in 1873 was 94,700, of 12,300,000 registered tonnage; and in 1895 it had risen to 133,800 vessels with 30,500,000 tons. The average of 1873-75 was about 91,900 ships with 12,800,000 tons; in 1891-95 it was about 135,200 vessels with 29,800,000 tons.

The growth of shipping, distinguishing steamers and sailing vessels, is best seen in the following table:—

The improvement, therefore, for total steamers from 1873-75 to 1891-95 was nearly 46,000, or 263 per cent., and the number of sailing ships decreased by 2,600, or 3 per cent. For tonnage the increase was, for the same two periods, for steamers, 18,100,000; and sailing ships show a decrease of 1,100,000, or of 20 per cent. It will be noticed that it is especially in the last 10 years that there has been such an enormous development of shipping traffic.

The coasting trade proper has developed from 1873-75 to 1891-95 from 2,000,000 to 6,400,000 tons.

The following table shows the development from 1881-95:—

DEVELOPMENT of Shipping, 1881-95.

Development of shipping, 1881-95.									
Average of Years.	Steamers.				Sailing Vessels.				
	Number in Thousands.		Tonnage in Millions.		Number in Thousands.		Tonnage in Millions.		
	On Coasts.	High Seas.	On Coasts.	High Seas.	On Coasts.	High Seas.	On Coasts.	High Seas.	
I. 1881-85	14.2	21.8	1.8	11.6	51.8	25.1	1.4	3.6	
II. 1891-95	32.0	31.5	4.5	20.7	51.7	20.0	1.9	2.7	
II v. I + or - ...	+ 17.8	+ 9.7	+ 2.7	+ 9.1	- 0.1	- 5.1	+ 0.5	- 0.9	

Table No. 2 showing the development of German sea traffic with the different countries of the world will be found most interesting for the periods 1873-75, 1881-85, and 1891-95.

PROPORTION of German to Foreign Ships, 1873-95.

Year.	Total Vessels.				Steamers Only.				Proportion of German to foreign ships 1873 to 1895.
	Number in Thousands.		Tonnage in Millions.		Number in Thousands.		Tonnage in Millions.		
	German.	Foreign.	German.	Foreign.	German.	Foreign.	German.	Foreign.	
1873...	60.3	34.3	6.0	6.4	7.6	9.5	2.6	3.8	
1884...	89.4	31.1	10.1	10.3	26.4	15.8	7.0	8.4	
1896...	97.4	36.5	15.0	14.5	49.4	21.0	13.3	12.8	

Development of the German Mercantile Marine.

Roughly speaking, the Empire possessed in 1871, 4,500 ships with a tonnage of 1,000,000; by 1897, the number had fallen to 3,700 but the tonnage had risen to 1,650,000. In the former year there were 150 steamers of 82,000 tons, and 4,350 sailing ships of 900,000 tons; in the latter there were 1,125 steamers of 900,000 tons and 2,550 sailing vessels of 600,000 tons; and calculating, as

Development of German mercantile marine in numbers and tonnage.

is usual, a steam ton as equal to three sailing tons we obtain a total capacity in 1897 of about 3,300,000 tons. Details of this development year by year will be found in Table No. 3 in Appendix, together with quinquennial averages.

By January, 1898, it is expected that the carrying capacity of the German merchant fleet will reach 4,000,000 tons.

The growth of shipping at Hamburg and Bremen for steamers is now shown.

GROWTH of Shipping at Hamburg.

Growth of
shipping at
Hamburg.

Years.	Steamers.			Sailing Ships.	
	Number of Vessels.	Net Tons.	Gross Tons.	Number of Vessels.	Tons.
1871	37	32,450	48,000	402	152,046
1881	128	99,153	137,046	373	145,126
1891	312	373,422	510,847	286	195,816
1897	377	482,917	765,818	296	197,219

At Bremen.

At Bremen, on the other hand, the increase of steamers, though large, has not been quite so great, the figures being, in 1872, 33 steamers of 52,748 registered tons; in 1882, 81 steamers of 75,702 registered tons; in 1892, 180 steamers of 201,124 registered tons; and in 1896, 221 steamers of 226,047 registered tons.

The Hamburg-American Line founded in 1847 the first regular communication with the United States by sailing ships, and began with a capital of 23,250*l*. In 1858 the North German Lloyd Company was started. In 1870 the Hamburg-South American Line was started. The great development has been since 1885.

Development
of the capital
of big shipping
companies,
1886 to 1896.

The development of the capital of the big shipping companies is best seen in the following table:—

DEVELOPMENT of Capital in Shipping Companies at Hamburg, 1886-96.

Year.	Number of Companies.	Share Capital.			Preference Shares.		
		£	s.	d.	£	s.	d.
1886	4	1,462,500	0	0	497,500	0	0
1887	4	1,525,000	0	0	575,650	0	0
1888	7	1,837,500	0	0	661,875	0	0
1889	7	2,654,162	10	0	1,034,350	0	0
1890	10	3,132,837	10	0	1,237,500	0	0
1891	10	3,619,500	0	0	1,262,500	0	0
1892	10	3,627,000	0	0	1,240,000	0	0
1893	10	3,477,000	0	0	1,440,000	0	0
1894	10	3,270,000	0	0	1,448,650	0	0
1895	10	3,482,500	0	0	1,463,500	0	0
1896	10	3,273,750	0	0	1,470,821	10	0

To the above sums for the big companies in 1896 must be added for the North German Lloyd (of Bremen) 2,000,000*l.* share capital (of which 1,715,000*l.* are preference shares).

This table does not include the "Steamer Company" ("Dampfschiffahrt-Rhederei") of 1889, and the African D.A.G. Woermann Line. In 1886 the following companies existed:—The Hamburg-American, Hamburg and South American, the German D.G. "Kosmos," and the D.R. "Kingsin Line." In 1888 were added the Hamburg-Pacific, Hamburg-Calcutta, and German Australian Lines. In 1890 there were also the German Levant, German East African, and Asiatic Coasting Lines of steamers.

In 1871 the Hamburg-American Line had 13 steamers, and in 1896, 62. In the former year the North German Lloyd had 28 ships of 58,000 registered tonnage, and in the latter, 48 ships of 208,000 tons. These two companies between them control nearly 50 per cent. of the total German merchant fleet.

TABLE of Original Cost, Book Value, &c., of Shipping Companies.

Company.	Number of Ships.	Gross Registered Tonnage.	Average Age.	Original Cost.			Book Value.			Table of original cost and present book value of shipping companies.
				£	s.	d.	£	s.	d.	
Hamburg-American ...	58	229,287	8·00	3,987,742	6	9	2,861,178	15	3	
Ditto (building) ...	7	52,800	...	802,190	0	0	802,190	0	0	
Hamburg South American ...	25	79,830	5·12	1,117,282	17	0	639,600	0	0	
Ditto (building) ...	4	18,500	...	200,000	0	0	200,000	0	0	
German D.G. "Kosmos" ...	19	58,467	6·90	788,291	1	0	456,750	0	0	
German-Australian ...	8	28,294	5·50	618,998	5	0	338,279	3	3	
Hamburg-Pacific ...	12	33,783	7·57	527,622	17	0	294,250	0	0	
German East Africa ...	11	24,554	6·64	638,991	3	0	380,250	0	0	
German D.R. "Kingsin" ...	13	42,254	5·54	611,774	6	0	398,750	0	0	
German Levant, 1889	9	16,726	13·33	254,334	6	0	90,000	0	0	
Steamship Company of 1889 ...	3	4,299	10·33	76,925	6	0	34,350	0	0	
Hamburg-Calcutta ...	5	19,014	4·90	263,555	14	9	175,000	0	0	
Asiatic coast ...	2	2,602	8·00	54,311	11	0	29,125	0	0	
Hamburg Companies ...	176	617,416	6·78	9,841,949	13	6	6,689,622	18	6	
North German Lloyd (Bremen) ...	48	205,416	9·70	5,531,132	19	0	3,182,900	0	0	
Ditto (building) ...	8	67,900	...	1,825,000	0	0	1,825,000	0	0	

It results from this table that there are now plying 213 ships, representing a tonnage of 744,200, which cost 14,350,000*l.*, and of which the book value is now 8,850,000*l.*, or about 11*l.* per ton. Then there are also being built for these lines a further 146,200 tons for 2,850,000*l.* At the end of 1896 the total book value of the Hamburg steamer fleet is estimated at, more or less, 7,000,000*l.*, to which must be added 26 other steamers now being constructed for a value of 1,700,000*l.*, making a total for that port of about 8,750,000*l.* For Bremen the total book value of its total of 130 steamers will be about 4,450,000*l.* There must also be added the ships and tonnage now plying and in construction of other ports. The estimated book value of the whole German merchant steamer fleet at the end of 1897 may be put at roughly 15,000,000*l.* If to this is added for iron and steel sailing ships an average value of 6*l.* 10*s.* a ton, and for wooden ones 2*l.* a ton, we have, for 400,000

German
steamer fleet
valued at
15,000,000*l.*

German sailing fleet valued at 3,000,000*l*.
Steamer and sailing fleets valued at 18,000,000*l*.

tons of iron sailing ships, 2,600,000*l*., and for 175,000 tons of wooden ones, 350,000*l*. The sailing fleet may, therefore, be valued at roughly 3,000,000*l*. Adding the steam and sailing fleets together, a grand total of about 18,000,000*l*.^{*} is obtained. It is to be remarked also that the German fleet consists of especially valuable material, inasmuch as it is continually adding new ships of the most expensive and modern types.

Shipyards and Shipbuilding.

Shipyards and shipbuilding.

Not less important than the development of the German shipping has been the extension of German shipbuilding in late years. Besides splendid building yards and docking accommodation, the German Empire has now at Elbing, Danzig, Stettin, Kiel, Flensburg, Hamburg, and Bremen, great works which can carry out all possible demands on their resources. On the Lower Weser there are eight shipbuilding yards, of which seven are in Hamburg. One is in Emden, one in Flensburg, over three in Stettin, over four at Danzig, &c. Also, in late years, the capacity of the docks has greatly increased. In 1896 Hamburg built a floating dock with a lifting power of 17,500 tons, which makes it no longer necessary for ships of even the very largest size to go to England for such purposes. A dock is now being built at Bremen which is to be capable of lifting ships up to 20,000 registered tons.

Eight shipbuilding yards on Lower Weser.

State expenditure on harbours.

Since the annexation in 1888 of Hamburg, Altona, and Bremen, to the "Zollverein," these towns have, by the expenditure of enormous capital, obtained new and capacious harbours. The cost sanctioned by the State at Hamburg is estimated at 15,000,000*l*., in Bremen, Vegesack, and Bremerhaven at 5,700,000*l*., in Altona at 450,000*l*., and at Geestemünde at 800,000*l*.

Total State and local expenditure on harbours and docks probably 37,500,000*l*.

One may safely estimate the total State and local funds for harbour and ship accommodation in the German Empire at about 37,500,000*l*.

^{*} The sum given in the German statement is 400,000,000 marks (20,000,000*l*.), but it is not explained in what this extra 40,000,000 marks (2,000,000*l*.) consists.
—W.S.H.G.

Table 1.—SHARE taken in 1896 by Foreign Countries in Germany's Trade.

Countries.	Imports into Germany.		Exports from Germany.		Total "Special Trade."	
	In Million Marks.	Percentage of Whole.	In Million Marks.	Percentage of Whole.	In Million Marks.	Percentage of Total.
I. Independent States and Colonies beyond the seas—						
United States	584.4	12.8	383.7	10.2	...	...
British East Indies	171.2	3.3	49.2	1.3	...	...
Argentine Republic	108.8	2.4	44.1	1.2	...	...
British Australia	103.2	2.3	29.3	0.8	...	...
Brazil	100.1	2.2	60.3	1.6	...	...
Chile	79.8	1.7	35.6	0.9	...	...
Dutch East Indies	77.9	1.7	13.8	0.4	...	...
China	71.8	0.9	45.3	1.2	...	...
Central America	39.7	0.9	10.7	0.3	...	...
West Africa (without German Protectorates) ...	33.5	0.7	8.5	0.2	...	...
The Cape	21.1	0.5	15.6	0.4	...	...
Egypt	20.2	0.4	9.9	0.3	...	...
Venezuela	15.9	0.3	6.4	0.2	...	...
Haiti	13.7	0.3	1.8	0.0	...	...
Porto Rico, Cuba	13.3	0.3	4.9	0.1	...	...
Mexico	13.1	0.3	15.0	0.4	...	...
Japan	11.4	0.4	35.6	0.9	...	...
Uruguay	10.5	0.2	9.6	0.3	...	...
Colombia	8.6	0.2	6.9	0.2	...	...
British West Indies	7.1	0.2	1.1	0.0	...	...
East Africa (without German Protectorates) ...	6.0	0.1	3.1	0.1	...	...
Ecuador	5.8	0.1	0.6	0.0	...	...
Peru	3.8	0.1	7.3	0.2	...	...
German West Africa	3.5	0.1	4.0	0.1	...	...
British North America ...	1.1	0.0	1.0	0.0	...	...
Bolivia	3.0	0.1	15.3	0.4	...	...
Transvaal	1.0	0.0	13.7	0.4	...	...
Philippine Islands, &c. ...	0.9	0.0	3.1	0.1	...	...
German East Africa	0.7	0.0	1.2	0.0	...	...
Total	1,581.3	32.9	836.6	22.2	2,367.9	23.5
II. United Kingdom	647.4	14.2	715.1	19.0	1,362.5	16.4
III. European countries with which trade is principally by sea—						
Italy	137.5	3.0	85.6	2.3	...	...
Sweden	74.0	1.6	78.3	2.1	...	...
Roumania	69.3	1.5	32.8	0.9	...	...
Denmark	65.2	1.3	97.4	2.6	...	...
Spain	35.9	0.8	39.4	1.0	...	...
Turkey	25.9	0.6	28.0	0.7	...	...
Norway	19.1	0.4	48.3	1.3	...	...
Portugal	15.2	0.3	13.4	0.4	...	...
Greece	9.3	0.2	4.1	0.1	...	...
Servia	6.6	0.1	2.5	0.1	...	...
Bulgaria	3.7	0.1	5.3	0.1	...	...
Total	461.7	9.9	435.7	11.6	897.4	10.8
IV. Countries with which trade is principally by land—						
Russia	634.7	13.9	364.1	9.7	...	...
Austria-Hungary	578.0	12.7	477.3	12.7	...	...
France	233.6	5.1	201.6	5.4	...	...
Belgium	175.7	3.9	178.0	4.5	...	...
Holland	162.6	3.6	262.3	7.0	...	...
Switzerland	146.3	3.2	244.0	6.5	...	...
Total	1,930.9	42.4	1,727.3	45.8	3,658.2	44.0
V. Free port of Hamburg ...	15.6	0.3	39.5	1.0	55.1	0.7
VI. Other countries	8.0	0.2	10.0	0.3	18.0	0.2

Table 2.—DEVELOPMENT of German Sea Traffic to different Parts of the World.

A. EUROPE.

Countries.	In Thousand Tons.			1873-75 to 1891-95.		1891-85 to 1891-95.	
	1873-75.	1881-85.	1891-95.	Increase in Thousand Tons.	Increase per Cent.	Increase in Thousand Tons.	Increase per Cent.
European Russia	867.5	1,200.4	1,421.9	554.4	64	221.5	18
Sweden	567.2	953.1	1,878.6	1,311.4	231	925.5	97
Norway and Spitzbergen	450.1	428.2	507.6	57.5	13	79.4	19
Denmark, Iceland and Faroe Islands	698.6	1,229.3	1,703.8	1,005.2	144	474.5	39
United Kingdom and Heligoland	5,233.5	6,552.3	8,964.2	3,630.7	69	2,311.9	35
Netherlands	309.1	349.5	548.9	239.8	78	199.4	57
Belgium	240.0	212.9	286.7	46.7	19	73.8	35
France	255.2	346.2	350.6	95.4	37	4.4	1
Spain and Portugal, and Gibraltar and Azores	68.6	212.7	269.1	200.5	298	56.4	27
Italy and Malta	36.6	100.7	119.4	82.8	226	18.7	19
Austria-Hungary	0.6	9.0	39.7	39.1	6,517	30.7	341
Greece and European Turkey	3.9	25.2	107.2	103.3	2,649	82.0	325
Roumania and Russia on Black and Azov Seas	17.2	181.5	476.9	469.7	2,678	295.4	163
Large fisheries (herring)	5.1	5.8	67.7	62.6	1,208	61.9	1,067
Total	8,753.2	11,806.8	16,642.3	7,889.1	90	4,835.5	41

DEVELOPMENT of German Sea Traffic to different Parts of the World—continued.

B. EXTRA-EUROPEAN PLACES.

Countries and Districts.	In Thousand Tons.			1873-75 to 1891-95.		1891-95.		1881-85 to 1891-95.	
	1873-75.	1881-85.	1891-95.	Increase (+) or Decrease (-) in Thousand Tons.	Increase (+) or Decrease (-) per Cent.	Increase (+) or Decrease (-) in Thousand Tons.	Increase (+) or Decrease (-) per Cent.	Increase (+) or Decrease (-) in Thousand Tons.	Increase (+) or Decrease (-) per Cent.
British North America on Atlantic and	20.6	29.1	108.9	+ 88.3	+ 425	+ 79.8	+ 274		
Greenland	1,385.1	2,088.1	3,899.3	+ 2,014.2	+ 145	+ 1,311.2	+ 63		
United States of America on Atlantic ..	20.6	51.3	104.0	+ 83.0	+ 407	+ 52.7	+ 103		
Mexico and Central America on Atlantic ..	129.8	156.4	231.1	+ 101.3	+ 78	+ 74.7	+ 48		
West Indies	52.5	22.3	24.0	- 28.5	- 54	+ 1.7	+ 8		
South America on Atlantic, North of Brazil	114.9	239.8	411.1	+ 296.2	+ 258	+ 171.3	+ 71		
Brazil	27.1	114.9	414.0	+ 386.9	+ 1,428	+ 299.1	+ 260		
South America on Atlantic, South of Brazil	91.6	211.1	456.8	+ 365.2	+ 399	+ 245.7	+ 116		
Chile and rest of South America on Pacific..	22.0	18.5	18.9	- 3.1	- 14	+ 0.4	+ 2		
Mexico and Central America on Pacific ..	4.0	7.0	25.9	+ 21.9	+ 547	+ 18.9	+ 270		
United States and British North America	0.8	4.5	7.7	+ 6.9	+ 862	+ 3.2	+ 71		
on Pacific	1.8	30.4	114.3	+ 112.5	+ 6,250	+ 88.9	+ 276		
Egypt and rest of Africa on Mediterranean	29.1	97.9	261.3	+ 232.2	+ 798	+ 163.4	+ 167		
Ocepe and Natal	6.1	10.7	10.5	+ 4.4	+ 72	- 0.2	- 2		
Africa on Atlantic, except German protected	2.8	1.8	42.5	+ 39.7	+ 1,418	+ 40.7	+ 2,261		
districts	122.6	189.9	592.5	+ 469.9	+ 383	+ 402.6	+ 212		
Africa on Indian Ocean and Red Sea, except	25.2	79.8	270.7	+ 245.5	+ 974	+ 190.9	+ 239		
German protected territories	35.5	57.5	205.6	+ 170.1	+ 479	+ 148.1	+ 257		
Asia on Mediterranean and Black Sea ..	17.6	2.6	0.7	- 16.9	- 96	- 1.9	- 73		
East Indies and Indian Islands									
China, Japan, and rest of Asia									
Australia, with Islands in Pacific, except									
German protectorates									
Other unknown places									

NOTE.—Except for the unimportant traffic between Austria-Hungary and Germany and the big sea fisheries, the principal part of the increase of traffic is with countries beyond the seas, and especially with Africa, Asia, and Australia.

Table 3.—DEVELOPMENT of the Mercantile Marine of the German Empire, 1871-97.

Years.	Steamers.		Sailing Vessels.		Total.	
	Number of Vessels.	In Thousand Tons.	Number of Vessels.	In Thousand Tons.	Number of Vessels.	In Thousand Tons.
January 1, 1871 ...	147	82·0	4,372	900·4	4,519	982·4
" 1872 ...	175	97·0	4,364	891·7	4,529	988·7
" 1873 ...	216	129·5	4,311	869·6	4,527	999·2
" 1874 ...	253	167·6	4,242	866·1	4,495	1,033·7
" 1875 ...	299	190·0	4,303	878·4	4,602	1,068·7
Average, 1871-75 ...	218	133·2	4,316	881·2	4,534	1,014·4
January 1, 1876 ...	319	183·5	4,426	901·3	4,745	1,084·9
" 1877 ...	318	180·9	4,491	922·7	4,809	1,103·6
" 1878 ...	336	183·4	4,469	924·6	4,805	1,117·9
" 1879 ...	351	179·7	4,453	949·5	4,804	1,129·1
" 1880 ...	374	196·3	4,403	974·3	4,777	1,171·3
Average, 1876-80 ...	340	184·8	4,448	926·5	4,788	1,121·4
January 1, 1881 ...	414	215·8	4,226	965·8	4,660	1,181·6
" 1882 ...	458	251·6	4,051	942·8	4,509	1,194·4
" 1883 ...	515	311·2	3,855	915·4	4,370	1,226·6
" 1884 ...	603	374·7	3,712	894·8	4,315	1,269·5
" 1885 ...	650	413·9	3,607	880·3	4,257	1,294·2
Average, 1881-85 ...	528	313·4	3,894	919·8	4,422	1,233·3
January 1, 1886 ...	664	420·6	3,471	861·8	4,135	1,282·4
" 1887 ...	694	453·9	3,327	830·8	4,021	1,284·7
" 1888 ...	717	470·4	3,094	769·8	3,811	1,240·2
" 1889 ...	750	502·6	2,885	731·3	3,635	1,233·9
" 1890 ...	815	617·9	2,779	702·8	3,594	1,320·7
Average, 1886-90 ...	723	463·1	3,111	779·3	3,839	1,272·4
January 1, 1891 ...	896	723·6	2,757	709·8	3,653	1,433·4
" 1892 ...	941	764·7	2,698	704·3	3,639	1,469·0
" 1893 ...	986	786·4	2,742	725·2	3,728	1,511·6
" 1894 ...	1,016	823·7	2,713	699·4	3,729	1,522·1
" 1895 ...	1,043	893·0	2,622	660·9	3,665	1,553·9
Average, 1891-95 ...	976	798·3	2,706	699·7	3,683	1,498·0
January 1, 1896 ...	1,068 {	(938·2*) 879·9	2,524 {	(624·2*) 622·1	3,592 {	(1,562·4*) 1,502·0
" 1897 ...	1,127 {	(1,039·2*) 891·9	2,564 {	(610·8*) 601·6	3,691 {	(1,650·0*) 1,493·5

* In consequence of a change in the method of measuring vessels made in 1895, there is a relative diminution of tonnage caused in 1896 and 1897 amounting, in the former year, to 58,300 for steamers and to 2,100 for sailing vessels, and, in the latter, to 147,300 tons for steamers and to 9,200 tons for sailing vessels. Figures in brackets are what the figures would have been but for this change, and are used in comparisons with back years.

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*Presented to both Houses of Parliament by Command of Her Majesty,
FEBRUARY, 1898.*

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GERMANY.

BERLIN.

Sir F. Lascelles to the Marquess of Salisbury.

(Received at Foreign Office, January 24, 1898.)

My Lord,

I HAVE the honour to forward to your Lordship herewith a Report which I have received from Mr. Harriss Gastrell, Commercial Attaché to this Embassy, relating to the results of the working of the Prussian State Railways for 1896-97, according to the Official Document laid before the House of Deputies a few days ago.

I have, &c.
(Signed) FRANK C. LASCELLES.

Report on Prussian State Railways in 1896-97..

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The results of the working of the Prussian State Railways for 1896-97 have just been published in a document laid before the House of Deputies, and are, briefly, as follows :—

Length of
line : broad
gauge.

The length of broad gauge lines owned by the State and working at the end of 1896-97 was 27,723·89 kiloms., as compared with 27,260·30 kiloms. at the end of the previous year. If the lengths of the Wilhelmshafen Oldenburger railway and the Prussian portion of the Main-Neckar line are deducted there remain 27,663·41 kiloms., of which 18,957·54 (or 68½ per cent.) are main line, and 8,705·87 (or 31½ per cent.) branch ones.

In working order there were 166·16 kiloms. of narrow gauge, and 213·17 kiloms. not yet open.

Invested
capital.

The invested capital on the broad gauge lines amounts to 354,339,326*l.* 16*s.*,* of which 353,781,487*l.* 14*s.* belongs to opened lines. This gives a result of 12,788*l.* 16*s.* per kilom. Compared with the last year's accounts, the capital has increased by 4,774,630*l.* 9*s.* (or 1·37 per cent.), whereas the average cost per kilom. has fallen by 42*l.* 8*s.* (or 0·33 per cent.). The Upper Silesian narrow gauge lines had a capital of 536,277*l.* 7*s.*, or 4,538*l.* 11*s.* per kilom., an increase of 1,529*l.* 8*s.* for the former and of 25*l.* 18*s.* for the latter over last year. With the Thuringian narrow gauge, taken over in November, 1895, the total capital on these lines amounts to 575,679*l.* 13*s.*, or 3,464*l.* 12*s.* per kilom.

Narrow
gauge lines.

There were 58 chief railway works, 16 smaller ones, and 233 workshops; of these, 54 had more than 300 workmen and 40 with over 50 (and up to 300). There are also a large number of apprentices there, averaging 2,200 a year, who also attend the local schools for ordinary education.

Workshops
and
apprentices.

Rolling stock.

The rolling stock consisted for 1896-97 of 11,008 engines (10,924 last year), of which the purchase value was 22,833,742*l.* 17*s.*; of 19,585 passenger carriages (18,801 last year), and cost 9,567,473*l.* 13*s.*; of 5,084 luggage vans (4,834 last year), value 1,757,981*l.*; and of 237,334 goods wagons (225,347 last year).†

The original cost of the rolling stock at the end of the year, dealt with in this report, was 67,361,724*l.* 4*s.*‡ or 19·04 per cent. of the whole capital invested on the working broad gauge Prussian State railways, namely 353,781,487*l.* 14*s.* The amount spent in 1896-97 on new rolling stock was 3,386,151*l.* 8*s.*

Total receipts
of State
railways.

The total gross receipts of the State railways were, in 1896-97, 54,972,497*l.* 4*s.*, as compared with 51,971,002*l.* 6*s.* for the previous year. The increase was, therefore, 3,001,494*l.* 18*s.*, or 5·78 per cent. The revenue per kilom. run was 1,993*l.* 16*s.*, as compared with the previous year's 1,923*l.* 8*s.* The estimated revenue of 1896-97 was exceeded by 3,942,877*l.* 4*s.*, or by 7·73 per cent.

Total
expenditure.

The total expenditure was 29,777,499*l.* 4*s.*, as compared with 28,497,567*l.* 17*s.* last year, being an increase of 1,279,931*l.* 7*s.*, or

* All converted at 20 marks to the 1*l.*

† Cost of 237,267 of these was 33,202,522*l.* 6*s.* The cost of the other 67 comes into the 1897-98 accounts.

‡ Excepting the Thuringian narrow gauge lines.

of $4\frac{1}{2}$ per cent. The actual exceeded the estimated expenditure by 754,814*l.* *s.*, or by 2·60 per cent.

The excess of receipts over expenditure was, therefore, 25,194,998*l.*, as compared with 23,473,434*l.* 9*s.* in the previous year. The improvement over the 1895-96 accounts was thus one of 1,721,563*l.* 11*s.*, or of $7\frac{1}{2}$ per cent.; that per kilom. amounted to one of 45*l.* 2*s.* The estimated surplus was 22,006,935*l.*, whereas the actual excess of revenue over expenditure in 1896-97 amounted to 25,194,998*l.*, being a yield of 3,188,063*l.* more than was expected.

The receipts from passenger and luggage traffic were 14,534,902*l.* 1*s.*, or 839,810*l.* 5*s.* more than last year, being an increase of 6·13 per cent., whereas the average kilometre length of line had only increased by 513·70, or by nearly 2 per cent. Of the total gross receipts from passenger and luggage service, 96·69 per cent. falls to the former, 2·54 per cent. to the latter (including conveyance of dogs), and 0·77 per cent. to other sources. The increase for passenger traffic over last year comes to 793,900*l.*, or 6 per cent. In 1896-97 the sums and proportions falling to the different classes were as follows:—For 1st class, 586,503*l.* 15*s.*, or 4·18 per cent.; for 2nd class, 3,363,477*l.* 4*s.*, or 23·93 per cent.; for 3rd class, 5,656,879*l.* 13*s.*, or 40·25 per cent.; for 4th class, 4,037,620*l.* 18*s.*, or 28·73 per cent.; and for military transport, 409,157*l.* 5*s.*, or 2·91 per cent. The improvements over the previous year were:—For 1st class, 21,943*l.* 4*s.*, or 3·89 per cent.; for 2nd class, 155,668*l.* 10*s.*, or 4·85 per cent.; for 3rd class, 305,610*l.* 12*s.*, or 5·71 per cent.; for 4th class, 309,479*l.* 17*s.*, or 8·30 per cent.; and for military transport, 1,197*l.* 17*s.*, or 0·29 per cent.

It is particularly the 4th class that has developed most in the year under report, whereas in the former year it was the 3rd class. This is largely accounted for by the introduction of 4th class on some lines where it did not exist before, on an extended system of workmen's tickets, on establishment of special compartments for women, on better seat accommodation, &c. In consequence of these improvements 4th class is being much more used than formerly for long journeys.

The total number of passengers carried was 436,717,857 (397,759,674 in the former year), being an increase of 38,958,183, or of 9·79 per cent. Of these, 33 per cent. went 1st class; 10·53 per cent., 2nd class; 52·11 per cent., 3rd class; 35·58 per cent., 4th class.

Goods traffic, which in the former year had considerably increased, has continued to do so; but the transport of cattle which had begun to decline last year has still further declined in the year under report.

The total tonnage carried has increased over the preceding year by 14,224,659 tons, or 9·29 per cent.; and the number of "ton-kilometres" traversed rose by 979,886,078, or 5·48 per cent. The increase of receipts on this traffic amounted to 1,846,867*l.* 2*s.*, or 5·30 per cent. The total tonnage of paying freight goods

Excess of receipts over expenditure.

Receipts from passenger and luggage traffic.

Division amongst the four classes.

Development of 4th class traffic.

Number of passengers carried.

Increase of goods and decrease of cattle traffic.

Total tonnage of goods carried.

carried (excluding service and other free transport) was in 1896-97 167,372,766 tons, as compared with 153,148,107 tons in the previous year.

Yield per ton. The yield per ton on these goods was 4.39 marks (4.39s.) in 1896-97, and 4.55 marks (4.55s.) in the preceding year. This great increase of goods traffic is chiefly to be attributed to the satisfactory state of business and commerce.

The large industries required the transport of great quantities of coal and iron. The harvest was a good one, and there was only a falling-off in fruit and potato traffic. There was an increased transport in building materials as that business was very active.

Of great importance, too, were the large quantities of beets transported. The exportation of coal to Russia and Austria-Hungary also considerably increased. In spite of the increased conveyance of beets, that of sugar has decreased, which is to be accounted for by various local circumstances.

Decreases in particular goods.

In nearly all classes of goods belonging to industries and agriculture there are increases; and decreases are only found in potatoes (of 101,534 tons), spirits (of 12,281 tons), starch (of 1,910 tons), raw sugar (of 108,788 tons), refined sugar (of 6,811 tons), hops (of 1,130 tons), soda (of 1,714 tons), flax (of 5,235 tons), jute (of 2,252 tons), wool (of 14,437 tons), and rice (of 4,759 tons).

Increases in some goods.

Some of the largest increases over the preceding year are—coals, 4,847,345 tons; lignite, 1,000,880 tons; beets, 1,155,606 tons; worked-up iron, 789,887 tons; raw iron, 541,209 tons; iron ores, 327,224 tons; other ores, 236,138 tons; lime (burnt), 124,335 tons; cement, 101,656 tons; stones, 1,157,277 tons; wood, 181,088 tons; paper, 28,340 tons; beer, 32,153 tons; manufactures of clay, 11,941 tons; glass, 9,044 tons; yarn, 2,682 tons.

Goods traffic: proportions carried at ordinary and at "preferential" rates.

The following table shows the increase in receipts on the ordinary tariffs, and from the preferential rates section:—

RECEIPTS of Goods Traffic. Ordinary and Preferential Rates.

Class of Tariff.	1896-97.		1895-96.		Increase.	
	Amount.	Per Cent.	Amount.	Per Cent.	Amount.	Per Cent.
	£	s.	£	s.	£	s.
I.						
Goods, "grande" and "petite vitesse," at ordinary rates	22,835,440	9 66.46	21,763,522	18 66.80	1,161,926	16 5.06
II.						
Goods, "grande" and "petite vitesse," preferential and other special rates	11,539,412	7 33.56	10,802,779	14 33.20	736,632	13 6.75
Total of I and II ...	34,374,852	16 ...	32,566,302	7 ...	1,901,558	9 5.82

The wages paid out in 1896-97 were 6,663,608*l.* 7*s.*, as compared with 6,588,299*l.* 2*s.* in the previous year. Wages paid.

The average number of employes in all branches of the railway system was in 1896-97, 109,204, compared with 107,734 for the preceding year. The total number of people employed, including workshops, averaged 188,262, or 8,834 more than in 1895-96. Besides this, 3,821 people were employed on special new lines or extensions. Number of employes.

The development of traffic in some goods, to which the more important preferential rates have been granted in late years, is now shown. Development of traffic in goods to which the more important preferential rates have been applied.

1. For goods exported and subjected to the competition of other countries. From German stations to Levant ports and to stations of "oriental" and Bulgarian railways, viâ Hamburg, by Levant Steamship Company. For piece-goods, average reduction, 48 per cent., for wagon loads from 57 to 23 per cent., according to distance and class. Introduced 15 June, 1890. Levant traffic.

Before these rates started there was no traffic at all. In 1892-93, 12,721 tons were sent at a cost of 8,550*l.* 6*s.*; in 1896-97, 10,262 tons went for 5,933*l.* 13*s.*

2. For goods exported and subjected to the competition of other countries. From German stations to East African ports, and to the Transvaal, viâ Hamburg, to increase exports of German industries. Introduced 1 May, 1895. East African traffic.

Before these rates were introduced there was no traffic at all. In 1895-96, 3,589 tons were sent at a cost of 1,555*l.* 1*s.*; in 1896-97, 4,959 tons went for 2,869*l.* 7*s.*

3. (A) For iron ores, &c., to blast furnaces. Introduced 1 May, 1893. 2,519,589 tons in 1893-94; 3,623,734 tons in 1896-97. Iron ore traffic.

3. (B) For coke to blast furnaces. Introduced 1 May, 1893. 2,363,303 tons in 1893-94; 3,573,585 tons in 1896-97. Coke traffic.

6. Iron and steel of special tariffs I and II. Introduced, 1 November, 1893. From all German iron industrial districts to the ports of Baltic and North Sea, and to stations on the coast. 390,446 tons in 1894-95, 426,209 tons in 1895-96, and 532,435 tons in 1896-97. Iron and steel traffic.

7. Iron for shipbuilding. From German iron industrial districts to ports on Baltic and North Sea. Introduced 1 November, 1895. In period, 1 November, 1894, to 31 October, 1895, 14,490 tons carried before this rate began. Then in 1896-97, 48,892 tons for 23,354*l.* Iron for shipbuilding traffic.

8. Coals. From Silesia to Stettin and Swinemünde and dependent stations. Introduced 1 March, 1896. In period, 1 April, 1895, to 29 February, 1896, 510,382 tons carried before this rate began. Then in 1896-97, 558,344 tons for 257,008*l.* 11*s.* Coal traffic.

In concluding this review of the working of the Prussian State railways in 1896-97, it will be of interest to mention that the railway debt in 1896 amounted to 261,499,861*l.* (out of a total Railway debt and interest, end of 1896.

raised of 351,183,539*l.*), on which there was paid for interest—at about a rate of 3·85 per cent.—10,168,164*l.*

Net results of
State railway
working from
1882-83 to
1895-96.

The excess of receipts over expenditure from 1882-83 to 1895-96 (13 years) had been 198,368,576*l.*, of which 120,148,244*l.* had been applied as interest on the railway debt. After paying off 660,000*l.* to meet deficits in the State expenditure, the net remaining surplus of 77,560,332*l.* was distributed thus: for general State purposes, not connected with railway expenditure, 47,358,840*l.*; for paying off the State debt, 26,138,068*l.*; for cancelling debt incurred by the State for railway purposes, 3,063,424*l.*; and for forming a fund for increasing working stock, enlarging lines, and for unforeseen expenditure, 1,000,000*l.*

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FEBRUARY, 1898.*

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GERMANY.

BERLIN.

Sir F. Lascelles to the Marquess of Salisbury.

(Received at Foreign Office, February 14, 1898.)

My Lord,

I HAVE the honour to forward to your Lordship herewith a translation of a Decree which I have received from Mr. Harriss Gastrell, Commercial Attaché to this Embassy, relating to the regulations to come into force on April 1 next, regarding information to be given by the custom-houses of the German Empire as to duties leviable on goods to be imported. The intending importer thereby acquires the right to ask for and obtain all details as to duties and tare allowances applicable to his goods.

I have, &c.

(Signed) F. C. LASCELLES.

[NOTE.—*Every merchant should enquire of his Continental agent at the port of entry as to any points which may not seem clear in the Decree.*]

The Bundesrath decided on January 20 to sanction the following regulations regarding the affording of official information on matters connected with custom-house tariffs, which are to come into force on April 1, 1898.

Signed at Berlin February 3, 1898,

For the Imperial Chancellor,

(Signed)

VON KOENER.

Regulations connected with Information on Custom-House Tariffs.

I.—The officials administering the custom-house at the place in the administrative district where the goods are to be entered, are to give, when requested, official information as regards the duties to be levied on the said goods, and also about the tare allowances made.

II.—The person enquiring on these points must state :—

- (a.) Whether he has already addressed the questions to any other administrative officials, and what reply he obtained.
- (b.) Whether the goods in question, to his knowledge, have been previously imported by other persons or by himself, and through what custom-house ; and, if so, what treatment they received as regards the duties levied.
- (c.) At what custom-house he intends finally to introduce the wares and pay the corresponding duties ; or declare why he cannot designate the place of entry.

III. The enquirer must also make a true declaration as to the quality and origin, &c., of the goods demanded by the administrative officers, and furnish as many samples or patterns as may be required in order to carry out the necessary technical examination of the goods. One sample or pattern must remain with the administrative officers ; a second one, after due identification, will be returned to the enquirer ; a third one, also duly identified by the officials, will be handed over to that custom-house at which the goods will be entered finally.

Should the production of samples be impossible from the nature of the article to be imported, then drawings or pictures are to accompany the enquiry, and are to be of a kind that the required information can be accurately given without production of the article itself.

In cases where it is not possible either to submit samples or patterns, nor an intelligible and satisfactory description of the goods, the information asked for will not be given.

The administrative officers can dispense with the submission of samples or patterns whenever they may consider them to be unnecessary.

IV. The enquirer has no right of complaint against the information given him.

The right of those persons liable for the payment of duties, to complain of the eventual manner of "clearance" (under the provisions of paragraph 12 of the Law of the Customs Union) resulting from the information afforded them, is not interfered with by the above paragraph (IV).

V. The costs of the necessary technical examination of the goods, as also those necessitated by the transport of the patterns or samples have to be borne by the enquirer. Any other expenses are not to fall upon him. The administrative officers are authorised to demand a suitable money deposit in advance,

and this has especially to be attended to in those cases where the enquirer has neither his domicile nor business residence in the Empire.

VI.—Information is to be given of the answer received to that custom-house of the district at which the goods are to be cleared, and, as far as possible, by the presentation of an identified pattern or sample of the goods. To what extent information must be given to the other custom-houses of the district is left to the judgment of the administrative officers.

VII.—The decision of the administrative officers, upon which the answer is given to the enquirer, is binding on the subordinate custom-house officials.

Should this decision of the administrative officers themselves, or of the highest financial authorities of the country or of the Bundesrath, be so altered after communicating it to the enquirer that the goods become subject to a higher duty, or are allotted a smaller tare allowance, then, for those goods of the enquirer which shall have arrived at any custom-house for clearance before the change is announced, the former treatment shall still be granted, and they will be exempted from the higher duty or lower tare allowance. Nevertheless, should the enquirer, under the provisions of the above paragraphs II and III, have knowingly omitted to fulfil them, or have incorrectly carried them out, then the difference in duty is to be collected from him so long as this is not prescribed by lapse of time.

VIII.—The highest financial authorities of the Empire are empowered to allow the original decision given to the enquirer, notwithstanding its having been subsequently altered by the authorities, to stand good for three months longer for such goods as the enquirer may have imported on the strength of that decision, if he can show that the said imported goods have been introduced in consequence of contracts which he bona fide entered into before having acquired any knowledge of the alteration in duty, &c. This regulation does not apply when the original decision has lost its validity from alterations in the laws, in the customs-house tariff, or in other publicly announced regulations.

Cases of this kind that have been approved of by the financial authorities are to appear in a list to be yearly submitted to the Bundesrath showing the remission of duties granted under this regulation.

IX.—If, within one year from the date of the enquiry, any change is involved in the answer given to the enquirer, in consequence of any changes (other than those made in the laws, in the statistical classification, and in other publicly announced regulations), then the enquirer will be officially informed of it. But after one year such information will only be furnished when asked for.

X.—The officials of the Empire administering the duties and taxes have immediately to take cognisance of the cases in which such information has been given, and to communicate them in a tabular form as quickly as possible to the Imperial Treasury.

Cases which are easy to decide and do not involve the possibility of any divergence of opinion, or which are of quite subsidiary importance, can be left out of these lists. It will be the business of the Imperial Treasury to see that divergent decisions by officials regarding the same article shall be quickly disposed of and made uniform by means of the highest financial officials or of the Bundesrath.

NOTE.—The reference to para. 12 of the "Law of the Customs Union" mentioned under paragraph IV is important, and provides that, in cases of complaint as to the application of the classification to the article imported, the question will be decided by the administrative officers of the customs.

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GERMANY.

BERLIN.

Sir F. Lascelles to the Marquess of Salisbury.

(Received at Foreign Office, January 31, 1898.)

My Lord,

I HAVE the honour to transmit to your Lordship herewith a summary of the Official Report on the business transacted and accounts returned by the Insurance Offices established under the Imperial German Law relating to Insurance for Old Age and Infirmary.

I have, &c.
(Signed) FRANK C. LASCELLES.

Summary of the Report issued by the Imperial Insurance Office on the Operations and Accounts of the Insurance Offices Established under the Law relative to Old Age and Infirmary Insurance for the Year 1896.

The report contains an account of the operations of the 31 old age and infirmity insurance offices established under the Law for the year 1896, the sixth since the Law came into force. General.

The tables, &c., are prepared by the insurance offices under the new instructions issued by the Imperial Insurance Office (Department for Old Age and Infirmary Insurance) on July 10, 1896. In conformity with these instructions a different division is made of revenue and expenditure, and no report is made of the capital invested.

For the last five years the results for the 31 insurance offices are as follows:—

GERMANY.

TABLE showing Results of the 31 Insurance Offices for the last Five Years.

Item.	1896.	1896.	1894.	1893.	1892.
There were in the years named—					
Members of managing committees ..	153	151	150	147	150
Assistants to managing committees ..	34	24	23	28	26
Office, chancery and cash officials ..	1,186	1,079	981	889	799
Under officials ..	106	99	87	75	69
Members of committees ..	610	610	618	618	618
Confidential advisers ..	66,274	66,205	65,776	60,300	58,633
Controlling officials ..	323	352	302	297	289
Arbitration courts ..	499	499	605	606	618
Offices where stamps are sold ..	9,095	9,176	9,233	8,914	8,293
Offices qualified to collect contributions for sickness ..	5,204	5,014	4,819	4,642	4,425
Similar offices appointed by communes or designated by the State authority ..	2,940	2,989	2,926	2,862	2,906

TABLE showing Results of the 31 Insurance Offices for the last Five Years—continued.

	Amount.							
	1896.		1895.		1894.		1893.	
	Marks	pf.	Marks	pf.	Marks	pf.	Marks	pf.
Allowances granted by the 31 insurance offices—								
(a) Invalid pensions	11,598,101	36	8,396,990	25	5,398,496	88	2,797,596	06
(b) Old age pensions	16,187,279	86	15,680,814	87	14,377,586	06	13,336,163	55
(c) Capital paid in lump	1,470	84	3,774	95	907	01	963	00
(d) Reimbursement in case of marriage	1,457,069	14	158,294	95	..	..	..	..
(e) In case of death	447,568	50	53,579	40	..	..	..	..
(f) Medical attendance	1,164,009	39	626,759	40	362,773	78	107,179	21
Total sum of allowances granted	30,845,528	59	24,870,213	32	20,129,753	72	16,241,901	82
Current expenses	3,387,964	67	3,206,184	83	2,866,013	64	2,626,777	93
Costs of collection and control	2,059,398	30	1,314,584	25	1,042,495	31	1,641,979	62
Other expenses, <i>e.g.</i> , arbitration, legal expenses, &c.	724,581	62	667,161	46	532,882	05	494,800	84
So that the total year's expenses (apart from payments to the reserve fund) were	37,017,413	18	30,557,143	86	25,171,144	72	21,005,460	21
And the total receipts (contributions, interest, rent from real property, fines, and other sources of income) were	114,536,753	82	106,716,487	84	101,329,354	85	96,785,765	73
							17,865,705	87
							92,070,714	75

GERMANY.

TABLE showing Particulars of the Total Amount granted in form of Allowances, Re-imbursements, &c., by the 31 Insurance Offices and the nine separate offices which are allowed to conduct Insurance Business.

Year.	Infirmary Allowances.			Old Age Allowances.			Re-imbursements on Marriage.			Re-imbursements in case of Death.			Total.	
	Total.		Paid by Government.	Total.		Paid by Government.	Total.		Paid by Government.	Total.		Paid by Government.	Total.	
	Marks pf.	Marks pf.		Marks pf.	Marks pf.		Marks pf.	Marks pf.		Marks pf.	Marks pf.		Marks pf.	Marks pf.
1891	...	...	...	15,306,702	26	6,049,848	41	...	...	...	...	...	15,306,764	34
1892	...	...	...	1,353,433	19	561,010	30	21,071,602	06	8,410,061	74	...	22,425,035	25
1893	...	...	...	5,282,850	42	2,209,016	30	22,763,337	03	9,062,636	71	...	23,046,187	45
1894	...	...	...	10,173,183	29	4,172,710	29	24,474,443	49	9,682,156	28	...	34,647,625	78
1895	...	...	...	16,525,632	49	6,329,679	35	26,576,369	92	10,483,680	39	11 36	42,321,371	49
1896	...	...	...	21,101,179	27	8,405,010	25	27,412,938	93	10,714,318	06	69 72	50,489,476	60
								1,456,106	61				19,119,658	31

The table is made out from the number of persons employed on December 31, 1896, that is the number as prescribed by the laws and regulations in force in regard to the members of the committees of management, and other committees, the confidential agents, and the members of the courts of arbitration. In case a post was vacant at the time, it is counted as being occupied. Substitutes are not reckoned, however, if not members of the regular staff, except in case of the assistants to the courts of arbitration.

Only the regular staff of the officials employed in the disbursing offices and chanceries are reckoned, that is those who presumably are permanently employed.

In 1896 in the 31 insurance offices the number of pensions granted were:—

	Number.			
Old age pensions				25,402
Infirmity pensions				60,562
Total				£85,964

The number of re-imbursements of previous payments allowed by the 31 insurance offices was—

	Number.			
On marriage				63,212
In case of death				14,484
Total				77,696

The number of pensions as given above cannot be compared with that given in previous reports for the reason that no regard is paid (contrary to the previous practice) to the pensions disallowed on appeal.

From the date when the Act first came into force the number of pensions granted, exclusive of those disallowed on appeal, is—

		Number.		
		Infirmity.	Old Age.	Total.
In the 31 insurance offices ..	202,403	288,212	490,620	
In the 9 special offices.. ..	14,889	5,511	20,400	
Total	217,297	293,723	511,020	

Costs of
administra-
tion.

The following table shows the cost of administration of the different offices in proportion to the receipts. It will be seen that there is a considerable difference between the offices, owing, mainly, to local conditions. The receipts of the offices for 1896 vary from upwards of 600,000*l.* in the Rhine province and Saxony, to 30,000*l.* in Oldenburg. The average for the 31 offices is over 200,000*l.*

TABLE showing Receipts, P'yments, and Cost of Administration of the several Offices.

BERLIN.

7

Number.	Insurance Offices.	Average Cost of Administration.				Per 100 Marks of Costs of Administration.		
		Per Cent. of Total Receipts.	In Marks per Head of Persons Insured per Annum for every 46 Instalments paid.		Cost of Control.	Cost of Collection of Instalments.	Cost of Control.	Cost of Control and Collection together.
			Cost of Administration, Enquiries, Arbitrations, Collection of Contributions, Control and Legal Assistance.	Cost of Administration, Enquiries, Arbitrations, Collection of Contributions, Control and Legal Assistance.				
1	East Prussia..	10.95	12.34	0.90	1.01	..	31.8	31.8
2	West Prussia	7.29	8.78	0.67	0.80	0.9	19.0	19.9
3	Berlin ..	3.26	3.53	0.44	0.48	..	13.4	13.4
4	Brandenburg	4.38	4.98	0.45	0.51	0.3	8.5	8.8
5	Pomerania ..	5.44	6.14	0.53	0.60	..	24.5	24.5
6	Posen..	8.77	12.01	0.77	1.05	0.1	17.1	17.2
7	Silesia ..	4.84	6.84	0.45	0.59	1.0	13.2	14.2
8	Anhalt ..	4.89	4.96	0.47	0.52	0.9	25.0	25.9
9	Schleswig-Holstein ..	5.93	6.40	0.67	0.72	6.2	13.5	19.7
10	Hanover ..	5.35	5.94	0.58	0.64	2.7	31.8	34.5
11	Westphalia ..	3.31	3.74	0.39	0.44	..	13.4	13.4
12	Nassau ..	3.96	4.33	0.46	0.51	..	20.7	20.7
13	Rhine ..	2.59	3.04	0.32	0.38	14.2	1.1	15.3
14	Upper Bavaria	1.79	1.96	0.20	0.21	..	4.7	4.7
15	Lower Bavaria	3.64	4.13	0.35	0.40	..	13.2	13.2
16	Palatinate ..	1.95	2.09	0.22	0.23	..	6.0	6.0
17	Upper Palatinate	3.66	4.02	0.35	0.38	..	6.8	6.8
18	Franconia ..	2.68	3.02	0.26	0.29	..	2.6	2.6
19	Mid Franconia	1.48	1.62	0.16	0.17	..	11.7	11.7
20	Lower Franconia	3.23	3.31	0.32	0.33	..	13.1	13.1
21	Swabia ..	2.41	2.47	0.26	0.27	..	7.7	7.7

GERMANY.

TABLE showing Receipts, Payments, and Cost of Administration of the several Offices—continued.

Number.	Insurance Offices.	Average Cost of Administration.				Per 100 Marks of Costs of Administration.			
		Per Cent. of Total Receipts.		In Marks per Head of Persons Insured per Annum for every 46 Instalments paid.		Cost of Collection of Instalments.	Cost of Control.	Cost of Control and Collection together.	
		Cost of Administration, Collection of Contributions and Control.	Cost of Administration, Arbitration, Collection of Contributions and Control.	Cost of Administration, Enquiries, Arbitration, Collection of Contributions and Control and Legal Assistance.	Cost of Administration, Enquiries, Arbitration, Collection of Contributions and Control and Legal Assistance.				
22	Saxony ..	5.35	5.59	0.62	0.65	61.9	..	61.9	
23	Wurtemberg ..	6.30	6.54	0.71	0.73	51.3	5.8	57.1	
24	Baden ..	4.99	5.27	0.58	0.61	53.7	3.9	57.6	
25	Hesse.. ..	6.20	6.35	0.70	0.71	59.3	9.2	68.5	
26	Mecklenburg ..	7.15	7.56	0.68	0.72	..	20.0	20.0	
27	Thuringia ..	5.91	6.18	0.64	0.67	53.4	4.2	57.6	
28	Oldenburg ..	3.93	4.18	0.46	0.49	..	9.7	9.7	
29	Brunswick ..	0.59	6.82	0.74	0.76	46.2	8.1	54.3	
30	Hanse towns..	7.29	7.45	1.02	1.04	63.5	5.3	68.8	
31	Alsace-Lorraine ..	3.29	3.54	0.41	0.44	..	18.8	18.8	
Average for the Empire..		4.76	5.33	0.52	0.58	20.0	12.9	32.9	
1895..		4.73	5.25	0.51	0.57	18.9	12.6	31.5	
1894..		4.46	4.91	0.47	0.52	18.3	13.1	31.4	
1893..		4.45	4.88	0.46	0.50	21.6	11.8	33.4	
1892..		4.48	4.93	0.45	0.49	19.5	10.6	30.1	
1891..		3.84	4.13	0.37	0.40	12.9	5.6	18.5	

The sum assigned to the reserve fund in 1896 from 25 insurance offices was 330,954*l.* Of this sum 137,034*l.* was paid over in cash.

The total yield of the contributions was 5,076,319*l.*, and exceeds the sum collected—

In—						Amount.
						£
1891	by	..	..	..	..	631,071
1892	„	..	..	..	..	649,788
1893	„	..	..	..	..	586,709
1894	„	..	..	..	..	439,798
1895	„	..	..	..	..	308,725

The numbers of contributions made in the several classes appear from the following table:—

Classes (according to Wages).		Number.				
		1891.	1892.	1893.	1894.	1895.
I. ...	...	108,310,459	99,864,782	98,286,604	101,468,238	102,984,236
II. ...	...	163,871,844	171,272,806	169,864,609	174,179,022	177,391,174
(And double stamps to the number of)		(228,855)	(152,760)	(188,412)	(273,406)	(373,149)
III. ...	...	92,514,948	94,823,134	99,629,474	102,967,209	106,698,714
IV. ...	...	62,485,699	58,452,781	60,902,950	63,254,909	66,128,439
Total ...	...	427,182,960	424,418,503	428,583,697	441,855,378	453,202,563

In 1896 the increase of the number of contributions is, as compared with 1895, 26,309,534.

The number of contributions which, on an average, were received per head from persons contributing was as follows:—

Year.	Total Number.		Classes.			
			I.	II.	III.	IV.
1891	39.7		10.1	15.2	8.6	5.8
1892	39.7		9.3	16.0	8.9	5.5
1893	39.8		9.1	15.8	9.2	5.7
1894	40.4		9.3	15.9	9.4	5.8
1895	40.9		9.3	16.0	9.6	6.0
1896	43.0		9.5	16.6	10.4	6.6

In the following tables particulars are given as to the revenue derived from contributions, and the number of contributions, according to classes, for 1891-96.

GERMANY.

Classes.	Per Cent. of Value of Contributions in—						Per Cent. of Number of Contributions in—						In the Six Years.
	1891.	1892.	1893.	1894.	1895.	1896.	1891.	1892.	1893.	1894.	1895.	1896.	
I. ...	17.06	15.78	15.31	15.32	15.12	14.59	25.35	23.53	22.93	22.96	22.73	22.07	23.24
II. ...	26.87	28.09	27.79	27.67	27.21	26.40	28.36	40.36	39.64	29.42	29.14	28.53	29.24
(Double stamps)	(0.06)	(0.03)	(0.04)	(0.06)	(0.08)	(0.08)	(0.06)	(0.04)	(0.04)	(0.06)	(0.08)	(0.09)	(0.06)
III. ...	24.98	23.72	26.67	26.65	26.86	27.29	21.66	22.34	23.22	23.80	23.54	24.07	23.03
IV. ...	21.09	19.81	20.33	20.46	20.81	21.72	14.43	13.77	14.21	14.32	14.59	15.33	14.49
Total ...	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

The average rate of the weekly contributions was—

In—						Amount.
						Pfennigs.
1891	..	..	..	..	..	20·81*
1892	..	..	..	..	..	20·86
1893	..	..	..	..	..	20·97
1895	..	..	..	..	..	21·04
1896	..	..	..	..	..	21·17

* Equal to 2½d.

With regard to the following figures it must be remembered **Annuities** that some pensions are paid by several offices ; so that the number **granted.** of pensions does not correspond to the number of pensioners ; the shares being put down to each office paying such.

The number of pensions or portions of such definitely fixed as payable by the 31 offices up to the end of 1896 was—

				Number.	Value per Annum.
					£
Old age pensions (or parts)	..			295,415	1,086,142
Infirmary..	..	..	..	215,652	694,181

Of these, by the end of 1895, the following number had lapsed :—

				Number.	Value.
					£
Old age ..	..	..	..	93,400	334,888
Infirmary..	..	..	..	60,907	191,570

So that at the end of the year the number still to be paid was—

				Num' er.	Value per Annum.
					£
Old age ..	..	..	..	202,015	751,804
Infirmary..	..	..	..	154,745	502,561

The average rate of a portion of a pension (that is the share

of a pension borne wholly or in part by a single insurance office) was for the total number of the 31 offices—

				Value.	
				Currency.	Sterling.
				Marks pf.	£ s. d.
Old age	..	..	..	73 53	3 12 6
Infirmary.. .. .	..	..	..	64 38	3 3 4

The average rate of the yearly pensions granted by the 31 insurance offices altogether up to the end of 1896 appears from the following:—

Pensions beginning in the Course of the Year.				Old Age.		Infirmary.	
				Without Imperial Contribution.	With Imperial Contribution.	Without Imperial Contribution.	With Imperial Contribution.
				£ s. d.	£ s. d.	£ s. d.	£ s. d.
1891	..	..	..	3 13 7	6 3 7	3 3 4	5 13 4
1892	..	..	..	3 17 5	6 7 5	3 2 8	5 14 8
1893	..	..	..	3 19 7	6 9 7	3 7 11	5 17 11
1894	..	..	..	3 15 10	6 5 10	3 11 3	6 1 3
1895	..	..	..	4 2 4	6 12 4	3 13 11	6 3 11
1896	..	..	..	4 5 4	6 15 4	3 15 9	6 5 9

These figures cannot, however, be considered as final, as new pensions are being continually granted, which are reckoned to preceding years. But it is probably only 1896 which will be much affected by later grants.

Pensions
outstanding.

The following tables give particulars as to the outstanding pensions or parts of pensions in the different offices in 1896. It must be observed, however, that the year 1826 (that is, persons 70 years of age), cannot be compared with earlier years; as only about half of the pensions granted had been distributed by the end of the year.

The following are the figures for the 31 insurance offices:—

OLD AGE PENSIONS.

Age Groups.	Share of the Whole of the Old Age Pension.		Per Cent. of the Whole of the Old Age Pensions.	
	Number.	Value.	Number.	Value.
		£		£
70	11,568	48,974	5·72	6·52
71	20,590	81,946	10·19	10·91
72	22,652	86,862	11·21	11·56
73	23,458	88,035	11·61	11·72
74	22,675	83,793	11·23	11·15
75	21,832	79,657	10·81	10·60
71 to 75	111,207	420,293	55·05	55·94
76 80	62,244	223,217	30·81	29·71
81 85	14,923	51,888	7·39	6·91
86 90	1,982	6,462	0·96	0·86
91 and over	141	466	0·07	0·06
Total	202,015	751,300	100·00	100·00

INFIRMITY PENSIONS.

Age Groups.	Share of the Whole of the Infirmary Pensions.	
	Number.	Value.
		£
20 to 25	2,325	6,955
26 30	4,295	11,691
31 35	4,488	13,155
36 40	5,744	17,303
41 45	7,216	22,480
46 50	10,549	34,066
51 55	15,901	52,171
56 60	22,648	75,172
61 65	31,413	104,583
66 70	35,747	118,723
71 and over	14,419	46,258
Total	154,745	502,561

Capitalised
value of
pensions.

The capitalised value of the pensions as definitely fixed amounts to—

					Value.
					£
Old age pensions	..	..	..	..	6,236,993
Infirmity „	..	..	..	..	6,149,265

From this must be deducted the capitalised value of old age pensions substituted for invalid pensions, or vice versa, amounting to 46,096*l.*, so that the entire capitalised value is 12,340,162*l.*

Besides the above, the offices which by Sections 5 and 7 of the Law are empowered to grant pensions and receive subscriptions, granted up to the end of 1896 :—

					Number.	Value Per Annum.
						£
Old age pensions	..	..			5,867	28,931
Infirmity „	..	..			15,620	51,240

by the end of 1896 the number which lapsed was—

					Number.	Value.
						£
Old age pensions	..	..			1,772	8,925
Infirmity „	..	..			4,918	15,753

So that by the end of 1896 the number still in force for which these offices was responsible was—

					Number.	Value.
						£
Old age pensions	..	..			4,095	20,006
Invalid „	..	..			10,702	35,486

The following table gives particulars as to the distribution of these pensions :—

Distribution
of pensions
by age groups.

OLD AGE PENSIONS.

Age Groups.	Number Falling Under the Age Group Specified.			
	Total Number of Old Age Pensions Granted, or Parts thereof.		Per Cent. of the Total of the Old Age Pensions.	
	Number.	Value.	Number.	Value.
70	428	£ 2,261	10·45	11·30
71	673	3,217	16·43	16·08
72	615	3,002	15·02	15·01
73	562	2,661	13·72	13·31
74	506	1,918	12·36	9·59
75	353	1,812	8·62	9·06
71 to 75	2,709	12,613	66·15	63·05
76 80	819	4,413	20·00	22·11
81 85	124	627	3·03	3·14
86 90	14	75	0·34	0·38
91 and over	1	4	0·03	0·02
Total	4,095	20,005	100·00	100·00

INFIRMITY PENSIONS.

Age Groups.	Number Falling Under the Age Group Specified.			
	Total Number of Infirmary Pensions.		Per Cent. of the Total of the Infirmary Pensions.	
	Number.	Value.	Number.	Value.
20 to 25	59	£ 158	0·55	0·45
26 30	171	473	1·60	1·33
31 35	263	774	2·46	2·18
36 40	375	1,156	3·51	3·26
41 45	605	1,928	5·65	5·43
46 50	930	3,052	8·69	8·62
51 55	1,535	5,055	14·34	14·25
56 60	2,234	7,596	20·87	21·41
61 65	2,316	7,957	21·64	22·42
66 70	1,739	5,759	16·25	16·23
71 and over	475	1,567	4·44	4·42
Total	10,702	35,486	100·00	100·00

Refunds on
death and
marriage.

The following table contains particulars as to the repayments made in 1896 by the 31 insurance offices under Sections 30 and 31 of the Law.

These were as follows :—

	Number of Cases.	Value.
		£
On marriage	63,212	75,035
„ death	14,484	22,686

The average amount repaid (for the 31 offices) was on marriage 23·74 marks (1*l.* 3*s.*), against 21·78 marks in 1895; on death, 31·33 marks, against 29·14 marks.

The following applies to the 31 offices :—

MARRIAGE REPAYMENTS.

Years of Birth.	Number.	Value.	Per Cent.	
			Number.	Value.
		£		
1830 to 1839	21	25	0·03	0·03
1840 1849	310	371	0·49	0·50
1850 1859	2,049	2,403	3·24	3·20
1860 1869	20,866	25,000	33·01	33·33
1871	39,966	47,234	63·23	62·94
Total	63,212	75,035	100·00	100·00

REPAYMENTS ON DEATH.

Years of Birth.	Number.	Value.	Per Cent.	
			Number.	Value.
		£		
Up to 1829	763	1,122	5·27	4·95
1830 to 1839	3,090	4,702	21·33	20·73
1840 1849	3,963	6,260	27·36	27·59
1850 1859	3,904	6,303	26·95	27·78
1860 1869	2,463	3,892	17·01	17·16
1870 and over	301	401	2·08	1·79
Total	14,484	22,686	100·00	100·00

Besides these, the special offices (see above) made repayments as follows :—

	Number of Cases.	Value.
Marriage.. .. .	34	£ 44
Death	2,235	3,723

The capital value (counting the worth of the property owned by the insurance offices) to the credit of the Government under the heading of insurance amounts to 23,031,942*l*. Capital owned by insurance offices.

Real estate is valued not at the cost price (as previously), but according to the value at the close of the year.

The 31 offices owned at the close of the year—

	Amount.
	£
Cash in hand	355,768
Securities, &c. (cost price)	22,159,479
Real property	471,822
Other property	44,873
Total	23,031,942

The average rate of interest on the investments in securities, &c., is 3·53 per cent. (against 3·67 five years ago), varying from 3·35 in Alsace-Lorraine to 3·77 in Posen. The total sum derived in 1896 from this source was 783,200*l*.

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Report on Agriculture in Germany

By MR. F. PH. KOENIG.

(Received from MR. T. R. MULVANY, H.B.M.'s Consul at Düsseldorf,
March 5, 1898.)

This primary and important branch of industry is, generally speaking, in Europe, in a depressed state, but most especially so in the British Isles, owing chiefly to the cheap and ever-increasing productive powers of North and South America as well as of the British Colonies, to moderate rates of railway transport in those countries as well as in certain parts of the European continent, to low sea and ocean freights, and to our open ports. Some causes of depression.

Being thus a burning question of the day, Mr. F. Ph. Koenig, a practical and theoretical expert, has kindly, at my request, written the following report on farming in Germany, supported by statistical tables.

Just a year ago he took charge of a farm of mine, which had been neglected, in the heart of the Westphalian industrial district, and he is training an agent for its future management.

As he has studied farming in England, Canada, and Germany, and has had considerable practical experience, backed up with the theoretical knowledge acquired at German agricultural colleges, and knows those parts of the country he writes about thoroughly from an agricultural point of view, which a Consul can hardly expect to gain, he is peculiarly well qualified to report on the subject, to which he regrets not having been able to devote more time, owing to his daily outdoor occupation in inspecting work.

It will be seen that in certain parts of Germany, high farming on a large scale has been brought to greater perfection than in Great Britain, whence the Germans derived their knowledge originally. Germans have improved on English system.

Possibly the British farmer has of late years been discouraged and depressed by the immense difficulties with which he has had and still has to contend, whereas the German has made progress under the less adverse policy of a moderate amount of protection and fair railway freights; the consequence is that even in some parts of Germany, where the farmer still adheres to his great grandfather's form of work, the business is not as in England and Ireland a hopelessly ruinous one. Advantage of protection and low railway freights.

I fear that in many parts of Ireland the "Moordamm-cultur" Mr. Koenig describes can hardly be applied, owing to the greater depth of bog turf mould.

In Germany turf mould is extensively used for horse and cattle bedding. It is pressed by hydraulic power into bales for transport. I think it will be found that this substitute for straw is imported into England from Hamburg and Holland.

Mr. F. Ph. Koenig's Report on Agriculture.

TABLE of Weights, Measures, and Currency.

German.					English.
1 hectare (100 ares)	..	..	..	..	= 2·471 acres.
1 morgen (25 ares)	..	..	..	..	0·618 acres.
1 hectolitre (100 litres)	..	..	..	..	22·01 imperial gallons.
1 kilogram (1,000 grammes)	..	..	..	..	2·204 lbs.
1 ton German (1,000 kilograms)	..	..	..	..	2,204 lbs.
1 doppelzentner	..	..	..	..	220·4 lbs.
1 zentner	..	..	..	..	110·2 lbs.
1 mark (100 pfennigs)	..	..	..	..	1s.
1 kilometre (1,000 metres)	..	..	..	..	0·624 miles.
1 metre	..	..	..	..	3·280 feet.
1 centimetre	..	..	..	..	0·40 inches.

Remarks as
to English
agriculture.

Although a strong believer in the efficiency and thoroughness of the English farmer, firmly convinced that there is nowhere in the world a better judge of live-stock in general than English breeders of high class stock, still I feel perfectly sure that in these days of agricultural depression all the world over we, in England, can still learn from our neighbours on the Continent how to make the most out of our land by taking up new lines of procedure, instead of plodding on in the old grooves of our forefathers, as so many English farmers are wont to do.

Having farmed in Germany for over 10 years, and having spent three years at three different German Universities, studying agriculture, I have had ample opportunity of observing the various ways and modes of farming, and specially the many institutions partly subsidised by Government, partly floated by private enterprise, for the welfare of all interested in agriculture.

Agricultural
institutions.

I will here only mention a few of the institutions I think of the greatest value for the farmers, and without which German farmers could scarcely have held their own through these critical years. There are the farmers credit associations, credit societies, known as the "Schultze-Delitzsch," and also the "Raiffeisen" credit associations; then there are the thousands of co-operative associations, with various objects, either for purchasing or selling agricultural produce; then we have the county banks and institutions for farmers to get credit at a low rate of interest, and for a long tenure of years; such institutions as the "Landschaft" would be of eminent value to the British farmer, who only too often is hampered for want of ready cash at short notice.

Land
purchase and
sale.

One of the most practical laws in Germany is that under which in the most convenient, easy and ready way land can be bought, sold, and transferred, almost with as little trouble as any commodity in the country, and with a minimum of expense, the parties only having to register the transaction before a State official; the land register office is the "Grundbuchamt," attached to the local court of Justice, where the acting judge registers the agreement.

Apart from private institutions, I must point out that with the exception of perhaps the United States of America there is no country which spends more money on agricultural education than Germany. There are nowhere in the world better organised agricultural colleges and farming schools, or a better staff of agricultural professors and teachers. I have had the opportunity of visiting a large number of agricultural colleges in the States, and must grant that the agricultural and chemical laboratories there compare very favourably with those of Germany, but the agricultural teaching staff of Germany is highly superior. It is not only the agricultural colleges at the Universities I wish to mention, but the schools all over Germany where agriculture in science and practice is taught; besides all the dairy schools and institutions for farriery and all branches of work directly or indirectly connected with agriculture. One of the greatest of German institutions is the State Experimental Station, established for the purpose of making experiments of all kinds, and also testing fodder, manures, seeds, &c., for farming, at quite a nominal fee. There are private experimental stations and chemical laboratories, but the greater part are subsidised by or are under management of the State altogether. The above are a few of those I just wished to touch upon before going on to a general report on agriculture in Germany; the latter I propose to deal with, not as a whole, but separately describing various States, their agricultural systems and modes of farming being so very different.

WÜRTENBERG.

As a kingdom or representative State of Southern Germany I propose to deal with Württemberg, where I spent three years, and had ample opportunities of acquiring some knowledge of its agriculture.

It comprises about 13,000 square miles and has 2,200,000 inhabitants; the country varies in height above the sea from 135 to 1,151 metres; needless to say, within this comparatively small kingdom farming is conducted on most varied lines.

We may, however, for practical purposes divide Württemberg up into four parts:—(1) the "Schwäbische Alb," 16 per cent.; (2) the "Ober Schwaben," 22 per cent.; (3) the "Schwarzwald," 7 per cent., the three equal to 45 per cent.; and (4) the "Niederschwaben," 55 per cent.

The "Schwäbische Alb" lies 1,000 metres above the sea-level and forms part of the "Jura" mountain-chain, starting in France and having a length of 185 kiloms., and a breadth of 40 kiloms., and constitutes 16 per cent. of the whole country. It is of a mountainous and partly rocky nature, and with a pretty cold raw climate; the land is loamy and suitable for arable purposes. It is in the hands of peasant proprietors, who are fairly well off. They are very good representatives of the peasant class of Germany; they live in villages, and number 50 inhabitants to the square kilometre. In this mountainous country I should mention

Water supply.

one of the most interesting features of the kingdom; whereas, formerly, one of the greatest drawbacks to successful agriculture was a scarcity of water, owing to its running off down the deep valleys, and a great scarcity of springs, at present, through a wonderfully ingenious system of pumping establishments, the whole plateau and all its houses are supplied with an abundance of water, which, formerly, often had to be drawn from great distances out of the valleys, or stored in reservoirs from rain or snowfalls.

"Ober-
schwaben."

To the south of this part of the country we come to the district known as "Oberschwaben," 600 metres above the sea-level; it is partly hilly and partly flat, and the scenery is very pretty; the climate is mild, and towards the Lake of Constance, grapes are grown in the open. The land consists chiefly of a good loamy soil; the greater part is purely agricultural, and in the hands of peasant proprietors.

"Schwarz-
wald."

We next come to the Black Forest or "Schwarzwald," from 300 to 1,051 metres above the sea; the climate is raw, the land partly of a loamy and of a sandy nature, and not particularly good for farming. 63 per cent. of the district consists of forest.

Nieder-
schwaben and
Franken.

We now come to the most important agricultural district, namely, the one known as "Niederschwaben und Franken"; the chief rivers are the Neckar and Tauber; the soil is for the greater part clay and loam, generally strong and bearing good crops. The climate is very mild, so much so that in some parts grapes are grown extensively in the open. The land is exceptionally good and prolific, and the country is one of the most thickly populated, the inhabitants numbering as many as 300 to the square kilometre.

Württem-
berg.

Turning to the kingdom of Württemberg as a whole, we find 31 per cent. of the land consists of forest, and 64 per cent. is used for agricultural purposes; this is an exceptionally favourable proportion of wooded and farming land. The forests amount to 60,000 hectares, one-third of the forests belong to the State, one-third belong to the corporations, and one-third is partly owned by the Crown and nobility, and partly belongs to peasant proprietors.

Size of farms.

The land used for agricultural purposes is chiefly in the hands of the latter, no less than 84 per cent. belonging to the peasants in the following proportions:—As to size, 20 to 50 hectares, 18 per cent.; 5 to 20 hectares, 44 per cent.; 2 to 5 hectares, 22 per cent.

Small
holdings.

The latter size of property is not sufficient to support a family, and some of the members earn a living as farm hands on the larger farms. The larger peasant holdings are chiefly in "Oberschwaben," where the land is handed over to the heir as a rule during the lifetime of the owners. There are only 630 farms of upwards of 50 hectares or 5 per cent. of the whole average. There are absolutely no farms of upwards of 500 hectares. The remaining 11 per cent. are holdings of under 2 hectares in size, and number 165,000. These latter are owned by artisans and mill hands, who work the land in their spare hours, and is of the utmost importance, as these men feel happier and more contented as owners of the soil, and have something to

look to and be proud of in advanced age, the house and the land they till being their property.

Every workman has the option of acquiring land and building his own cottage, and this very fact forms socially and politically the mainstay of the country. It is one of the advantages I wish specially to point out, i.e., the facility of buying and selling land, besides the social and moral benefit to the working classes. Social benefits.

As a rule we find that the richer the soil the less acres are owned by one family and vice versa, the poorer the soil the more are needed to support a family. In these peasant districts, where in a large family the property is sub-divided between many children, there exists the danger of the land being split up into too many small holdings, but through marriages and exchanges the evil is minimised. The State has taken measures to obviate this danger. In 1886 a Bill was passed under which it is possible for a whole parish, by a majority of votes, to carry through a series of exchanges amongst the peasant owners of the village in order to get the property, formerly owned in patches, all into one plot, and besides to lay out roads among the fields in such a way as to render all property approachable. Danger of too small properties.
State measures.

As regards the crops, fodder or green food plants form half; two-thirds are fodder grown on meadows and grasslands, and one third is green crops grown on the arable land. In those parts of Würtemberg where the rainfall is frequent, grasslands and meadows form the majority of the acreage. In the valleys and low-lying lands we find all the meadows and pastures irrigated. Among the green food crops on the arable land we find clover, lucerne, esparsette, maize, and vetch mixtures and roots; grain, peas, and beans form 60 per cent. of the 888,000 hectares of arable land. Besides these crops, a considerable area is sown with sugar-beetroot, chicory, and rape; the two former are grown in the milder, the latter in the rawer climate. Tobacco used to be grown extensively, but of late has been given up. Potatoes and kale are grown largely for sale, the former find their way down the Neckar into the Rhine. Round about Rottenberg, Tübingen, Herrenberg, and Tettnang, some of the choicest crops are grown. Distribution of crops.

The vine is grown in the open extensively where the weather is mild enough and comprises a total area of 22,000 hectares. Taking an average of 66 years the value has been about 450,000*l.* per annum; in 1868 it amounted to 1,250,000*l.*, and in 1851 only to 50,000*l.* A peculiarity of the vine culture is the sale of the "most," sweet vine juice, directly after the harvest, before fermentation has set in. The vineyards mostly belong to peasants who have no cellars, barrels, or vats to speak of; however, the small vineyard owners have clubbed together and formed co-operative societies for keeping the vine juice in cellars till fermented, and then selling it at a greater profit. This too is one of the large number of co-operative societies which farmers have formed for the more profitable sale of their produce, and which deserves consideration. The vine.
Peculiarities of culture and sale.
Co operation.

Nowhere in Germany have I seen finer orchards and fruit trees

Orchards.

than in Würtemberg. The income from fruit is one of the chief items in the farmers' books. It reaches an average of 400,000*l.* per annum. Some parishes realise several thousand pounds sterling from cherries alone. However, most money is derived from the apple; the greater portion of the apple crop is devoted to the making of cider and perry, only a few of the pear varieties, not suitable for cider, are sold or dried. It is a remarkable fact that all the home-made wine and cider is drunk in Würtemberg; this, no doubt, is a proof of how little the people suffer from poverty. The farm hands and country-folk all drink wine or cider, and the consumption of gin, whisky, and brandy is very small indeed.

Livestock and
breeding
associations.

As regards stock-breeding, there are a large number of horse-breeding associations working hand-in-hand all over the country, together with the State horse-breeding establishments and grass farms for the raising of good horses, partly for the army and partly for farm work. The former institutions are subsidised by Government.

Cattle.

Würtemberg owns about 1,000,000 head of cattle, these consist chiefly of the Swiss "Simmenthal" breed, and are a very useful high class kind; they are deep milkers, make capital beef, and the oxen are largely used for farm work, and with very good results.

Sheep.

Sheep-breeding has decreased considerably of late as everywhere else in Germany. During the last 30 years the number has diminished from 680,000 to 380,000.

The low wool prices and the fact that the export trade of mutton to Paris has ceased, continue to reduce the flocks. The chief breed of sheep was a cross of Merino, and later on of Rambouillet with the Würtemberg sheep. The product was a breed with good wool and good meat. There is a system of sheep-raising peculiar to this country; the shepherds own their flocks but no land. From spring to autumn they graze their sheep on the hills, for which they pay rent; in the autumn they rent certain parish pasture and run over the stubble; during the winter they hire a shed in the same parish or elsewhere and buy the necessary hay and food, and the farmers gladly pay for the manure, the sheep-folding being moved on the land generally twice a night.

Goats.

70,000 goats are kept in Würtemberg chiefly by the very small land owners, who generally are artisans.

Pigs.

Altogether there are 400,000 pigs in Würtemberg, chiefly crosses with English "Yorkshire," and it is gratifying to see that the "Yorkshire" pig is getting more numerous every year.

Calculating all the stock and the total acreage of land used for agricultural purposes, we find that Würtemberg has a head of cattle per $1\frac{1}{2}$ hectare, or 3.75 acres.

Chamber of
Agriculture.

Agricultural matters are managed for the whole of Würtemberg by a central Chamber of Agriculture, which is a State body. In each of the 64 districts of the country, there is a district Chamber of Agriculture, subsidised by the State; these

are united in 12 unions, which act as electors, and have to manage the buying of breeding sires, and make the necessary arrangements for all the various institutions subsidised by the State. Besides these Chambers of Agriculture there are numerous clubs for special branches of agriculture, and for special breeds of stock, besides special farmers' clubs, for vine and fruit growing.

The co-operative societies are specially worthy of notice. In more than 33 per cent. of all country parishes there exist co-operative credit institutions; these 707 banks at present are united under one central bank, which they founded. In this way farmers procure personal credit to a certain extent as members of the co-operative bank at any time and without the slightest difficulty.

On June 15, 1897, the union consisted of 707 co-operative credit banks and 62,526 members. During the last 12 months 41 co-operative credit banks joined the union and one was excluded, so that the union was increased by 40 such banks with 3,258 members.

In 1896, 669 of these banks published their balance-sheets. There are—

Number of Credit Banks.	Number of Years Standing.
29	16
26	15
22	14
19	13
15	12
25	11
16	10
21	9
40	8
59	7
83	6
117	5
98	4
36	3
42	2
21	1

The books of these 669 credit banks show the following figures:—

					Number. 62,120	
Members	..	..	..	..	Marks	pf.
Turn-over	..	..	..	..	65,178,226	86
Assets	..	..	..	..	26,275,180	61
Liabilities	..	..	..	..	26,120,528	56
Year's profit	..	..	..	..	149,571	44
Reserve fund	..	..	..	..	688,576	13
Outstanding moneys	..	..	..	..	837,417	17

Increase of
business
transacted.

Compared to 1895 the following is the increase:—

	Number.	
Credit banks	20	
Members	3,425	
	Marks	pf.
Turn-over	3,795,017	80
Assets	2,333,165	83
Liabilities	2,329,535	85
Year's profits	3,721	29
Reserve fund	127,790	91
Outstandings	88,313	17

Savings banks
in connection
with credit
banks.

There are 310 credit banks which have a savings bank attached. In 1896 these showed deposits to the amount of 1,146,019 marks 36 pf.; compared to 1895 this is an increase of 9 savings banks and 99,238 marks 51 pf.; a deposit of over 100 marks in one account is transferred to the credit banking account, so that the above figures do not show the sum total of deposits.

Interest on
loans paid by
credit banks.

The following statistics show the percentage of interest on loans paid by the credit banks:—

Amount of Interest.	Percentage of the Credit Banks.
Per cent.	
5	1
4½	1
4¼	1
4	50
3½	14
3¼	29
3¼	2
3	3

Interest paid
by credit
banks on
deposit.

The following statistics show the percentage of interest paid by the credit banks on deposits:—

Amount of Interest.	Percentage of the Credit Banks.
Per cent.	
1½	1
2	9
2½	23
3	59
3½	7
4	1

Interest
charged by
the credit
banks.

The following statistics show the percentage of interest charged by the credit banks:—

Amount of Interest.	Percentage of the Credit Banks.
Per cent.	
4	8
4½	5
4½	50
4½	4
5	32
5½	1
5½	1
6	1

In cases in which the dates for repayment of loans have to be prolonged, the majority of the credit banks charge a slight commission.

The percentage of interest charged has gradually receded, which is quite in accordance with the general state of the money market; still the credit banks as a rule charge slightly more than that of the current minimum, in order to have a surplus for the reserve fund.

Co-operative purchases were made by 325 credit banks in 1896, and amounted to 629,225 marks 80 pf. Co-operative purchases.

These purchases consisted of :—

Articles.	Quantity.
	Centners.
Mineral manures	116,500
Seeds	2,500
Food-stuffs	17,000
Fruit	21,000

Compared to 1895 the number of co-operative purchasing credit banks increased by 17, but the transactions decreased to the amount of 13,198 marks 90 pf.

The books of 649 credit banks were examined as customary at the Union's Central Bank, by specially appointed auditors. Auditing of books.

On February 18, 1897, the auditors gave the following report as to the standing of the co-operative credit banks :—

	Percentage.
(1) 450 credit banks' business transactions were considered thoroughly satisfactory	70
(2) 192 credit banks' business transactions were considered satisfactory, but with room for improvement.. .. .	29
(3) 7 credit banks' business transactions were considered unsound, and needed reforming	1

It is interesting to note that : 1, consists of banks of older ; 2, are of recent standing ; 3, unfavourable results due to inexperience in business transactions.

State help to
cover auditing
expenses.

The total expense of auditing in 1896 amounted to 14,498 marks 12 pf., to which the State of Würtemberg subscribed 8,200 marks.

The above figures speak for themselves, and show clearly the successful management of the co-operative system, united as it is under one central agricultural Union Bank, the success is also attributed to the interest the State takes in their welfare and development.

It has always been a puzzle to me why English farmers do not club together and form similar co-operative banks for the benefit of all concerned. Co-operation has proved to be the key to success in Germany, and has saved many thousands of farmers from ruin.

Co-operative
dairies.

There are 400 co-operative dairies in Würtemberg. The members are farmers, and the skimmed milk is returned to them, they receiving cash for the milk according to the amount of butter-fat contained therein, besides dividends from the money invested in the dairy. Latterly the State has given dairy instruction free of charge through experts in the best equipped dairies in the country.

Co-operative societies for the purchase and sale of farm produce have not flourished, as the banks procure the necessary credit, and thus make them superfluous.

Würtemberg
State help.

There is hardly any State in Germany which does so much to help agriculture as Würtemberg does. The Ministry is advised in agricultural matters by the Central Board of Agriculture at Stuttgart. There is a Central Commission for public works, further a Royal Commission for horse breeding.

The central union consists of 12 provincial and 64 district agricultural associations representing the farmers' interests in general, and is in constant touch with the Board of Agriculture, as is also the case with the many horse, cattle, and pig breeding associations.

Agricultural
education in
Würtem-
berg.

Hohenheim
Agricultural
College and
institutions.

In agricultural education the State of Würtemberg can be taken as a model, and I should specially like to draw attention to the agricultural colleges and schools of Würtemberg.

Hohenheim Agricultural College, where I had the pleasure of studying during two years, is, in its way, the best agricultural college in Germany, where science and practice are combined and taught simultaneously, the agricultural and science lectures being regularly combined with practical demonstrations on the estate upon which the college stands.

The agricultural college was founded in 1818, and that of forestry in 1820, and then in the "twenties" a farming school for peasants' sons was also built, where they learned practical farming on the farm of 1,000 acres, besides a horticultural and viticultural school, and collections of soil and models of machinery were begun. About the same time the technological institute, a distillery, and a sugar factory were added; later a brewery and vinegar factory.

In 1847 the agricultural institute and college of forestry

were promoted to the rank of a university, under the supervision of the Board of Agriculture, for which, in 1867, the Board of Agricultural Education was substituted. 1865 was one of the years which Hohenheim may justly be proud of, for it was that in which the first agricultural experiment station of Germany was founded by the State, under the management of one of her pioneers in agricultural chemistry, the late Professor Dr. Emil von Wolff.

In 1877 the institute for testing seeds was established, and likewise a meteorological station. In 1883 an institution for testing agricultural machinery was organised, and in the same year a model steam dairy and a butter and cheese factory added, in combination with a model pig-raising establishment. In 1886 the fisheries institute and fish breeding station were built, and in 1890 a model fowl-breeding establishment. Since then a bacteriological institute has been founded, and the technological institute, comprising the sugar factory, distillery and brewery, rebuilt and reorganised with the most recent improvements in machinery. An important addition is the department for the manufacture of bacteriologically pure yeast.

The herd of Simmenthal cattle of over 100 head is of a very high class, and all the young bulls are sold for breeding purposes. The cowshed and all buildings are quite models, and built on the most approved plans. There are extensive green-houses, large reservoirs to supply all the buildings with water, as well as the numerous fish ponds, and there are besides extensive irrigation works for the meadows.

The State of Würtemberg subsidises the college with a yearly amount of over 7,000*l*. The lectures are given by 18 professors and nine assistant lecturers residing in Hohenheim. A three years' course is necessary to the attainment of thorough efficiency to take a diploma of agriculture.

The library contains 14,000 volumes. In the chemical laboratory there is room for 16 students, and it is well fitted out with chemical apparatus.

The botanical gardens have an area of 15 acres, and there is a herbarium of 27,000 plants.

There is a fine mineralogical, geological and zoological museum, and a specially fine collection of agricultural implements. There are, further, very good collections of soils, mineral manures, agricultural produce of every kind, wool, models of technological machinery, veterinary collection, shoeing utensils, and shoes in endless shapes and forms.

One building is always full of new agricultural machinery sent in by manufacturers to be tested.

The physical laboratories are well supplied with all the recent instruments necessary for experiments.

The agricultural experiment station is one of the most important institutions of the State College. Two professors and three agricultural chemists are employed in scientific research in agricultural chemistry of soils, plants and animal food, mineral

State
agricultural
experiment
station.

manures, and experiments with plants and various animals as to the necessary quantities of food to produce a certain amount either of plant or animal substance, food quantities both for sustaining life and for power production are there determined.

The digestiveness of animal food is tested; the effects of different proportions of protein, carbohydrates and fat on animals are the objects of research for these experimenters.

Chemical
analysis for
farmers
gratis.

A very important function of this station is to test soils, foods, mineral manures for farmers in Würtemberg. I would specially point out that any farmer in the kingdom of Würtemberg can send in a sample of his soil or sample of foodstuff, cake, or meal, or any mineral manure for chemical analysis and that the tests are gratis, the State paying all the expenses connected with the experimental station, both in scientific research and chemical analysis for the farmers of the kingdom, for whom, up to 1890, 1,800 tests were made. Since 1890 over 5,000 chemical analyses were made per annum.

Seed-testing
institute.

An equally important institution is the one in Hohenheim for testing seeds, their purity and germinative powers. This institute tests seeds gratis for any farmer in the kingdom, and besides makes experiments with various varieties of agricultural plants, in propagating and crossing varieties of wheat, &c. The average tests for purity and germinative powers amount to 1,500 per annum. Needless to say how useful both the above institutions are to the farmer in guarding him against the dealers' dishonesty.

Institute for
testing
agricultural
machinery.

A great help to the farmer is also the Hohenheim Institute for testing agricultural machinery, to which I have already referred. Whereas, elsewhere farmers are obliged to test a machine themselves, and only too often have to pay for dearly bought experience, in Würtemberg the State goes to the expense of appointing and subsidising a commission for testing new machines, and after testing these during many months, the machine being used during a season on the farm of Hohenheim, the report as to the advantages and defects of the machine is made out, and can be had by any farmer for the asking, and if he chooses he can see the machine he contemplates buying working on the farm. Advice and opinions are given gratis.

The
Technological
Institute,
tests gratis.

Lastly, the State Technological Institute of Hohenheim is a boon to all agricultural distillers, brewers and dairymen. Its chemists test gratis all samples sent in by the same. They not only make chemical analysis of any raw stuff or product of these manufacturers, but also test saccharometers and alcoholometers, and all instruments and machinery used, and give professional advice gratis. Analyses of milk in all its stages, of butter, buttermilk, and cream, skim-milk and cheese, are made free of charge for any farmer.

The
Bacterio-
logical
Institute.

The Bacteriological Institute, recently connected with the Technological Institute, has done a great deal of good work in the various branches of distilling, brewing, dairying, and has turned out a great success.

Besides this eminent University College of Hohenheim and the various institutes there I have only just touched upon, and

which the State so generously subsidises, Würtemberg has a veterinary college only second in rank to that of Berlin, besides 10 farming schools, a pomological institute, and numerous household and dairy schools for farmers' daughters.

Veterinary college and farming schools.

One of the most recent branches of research in Hohenheim is that in the propagation of brewing or malting barleys, and feeding barleys. It is a recognised fact at present that a malting barley must be very differently constituted to a feeding barley. By careful experiments Professor Behrendt has been able to breed varieties of malting barleys with very different chemical constituents, and thus enhance the value both to the farmers, to the brewer, and the distiller.

Malting and feeding barleys.

There are two more points in Würtemberg as regards State help I should mention. It keeps a staff of agricultural lecturers at its own expense, whose business it is to give lectures by appointment at any farmers' club, or in any parish gratis. The farmers only have to arrange and appoint a day with the Central Board of Agriculture to send a competent lecturer to discuss certain questions, and give professional advice on any branch of agriculture. The University College professors can also at any time be called upon to give a lecture to any farmers' club in the country by appointment on any agricultural question of importance; the expense is paid by the State.

State staff of agricultural lecturers gratis.

The State of Würtemberg awards a medal and a premium of 500 marks per annum for the best managed farm of any size and description in any part of the country. Men who have won the medal and premium get a name as good farmers, and benefit financially in many ways in the marketing of their stock or produce; especially is this the case in the sale of seed and breeding stock, where a recognised and well-known name is worth a good deal.

State medal and annual premium to the best farm.

As regards agricultural depression, there is no doubt that Würtemberg has felt it, especially in the prices of cereals, but, on the other hand, a country that has half its acreage under green crops, fodder, and roots, and where the chief income is derived from cattle, cannot have felt the depression as keenly as others, which are more dependent on cereals as the chief source of income.

Agricultural depression in Würtemberg.

Würtemberg has effectively battled against agricultural depression by co-operation, and this principle, whether applied to banks or dairies, combined with State aid in high-class agricultural education, has carried many a farmer over many a dark day and critical year.

The farmers in Würtemberg are a thrifty, hardworking race of men, who are improving their farms every day of their lives, and have plenty of self-confidence and self-reliance to resist bad times.

WESTPHALIA.

Turning to another part of Germany, let us go to Westphalia; there is hardly a province in that empire which bears so much

resemblance to some of the most industrial and thickly populated English counties as it does. The traveller will notice striking features reminding him of Lancashire in its more populated parts. Westphalia has over 2,500,000 inhabitants, and covers an area of 20,204 square kiloms. It is very rich in minerals, nearly 30,000,000 tons of coal, and about 1,000,000 tons of iron are turned out per annum, besides there are large numbers of cotton mills and many other industrial branches.

Distribution
of land.

Agriculturally, it consists of 41·6 per cent. arable land, 0·9 per cent. garden land, 7·7 per cent. meadow, 17·3 per cent. pasture, and 27·9 per cent. forest.

The agricultural population cannot be better described than in the clever lines:—

Das ist so recht Westfalenart
Fromm, sinnig, weich, nicht überzart,
Zäh, treu, auch trotzig, deutsche Leute
So waren sie, so sind sie heute.

The farmers are a fine-looking, strongly-built, hardy race of men, of thoroughly Germanic type, with plenty of practical, common sense. Naturally in so large a province farming is carried on on various lines, according to the climate, the land, and the exigencies of the more thickly populated industrial districts. Hence it will be necessary to review the whole province in separate parts.

The "Land-
schaft."

As far as Westphalia's agriculture as a whole can be judged, I give the figures of the "Landschaft" (the largest institution of Westphalia for supplying credit to landowners).

The year's increase of mortgages was:—

						Amount.
						£
At 4 per cent.	..	..	..	..	..	67,000
3 ,,	..	..	..	..	..	42,000
Total						109,000
Released from mortgages	..	..	..	..	..	30,000
Net increase						79,000

The members of the "Landschaft" number 2,517, and the amount mortgaged represents close on 2,000,000*l.* sterling.

The accounts show a surplus balance of 4,000*l.*, which was distributed among the members.

The reserve fund is about 22,000*l.* As a credit institution it is of the highest value for landowners, and has turned out a great success since it was founded in 1877.

Saving and
credit banks.

Besides this "Landschaft" there exist 245 savings and credit banks run on the co-operative system. The central bank of these had an income of 450,000*l.*, and an expenditure of

about the same amount per annum; the assets amounted to 142,000*l.*, the liabilities to 139,000*l.* The country savings and credit banks sent 250,000*l.* to the central bank, and took out about 200,000*l.*

These figures show how extensively these co-operative savings and credit banks are used, and how easily they are worked, with a central bank to collect all the amounts.

In 1889 a Dairy Union was formed out of 65 co-operative dairies, which handled 50,000,000 to 60,000,000 quarts of milk per annum. At the beginning of the "eighties" there only existed two or three co-operative dairies. The "Dairy Union."

The co-operative dairy system of Germany seems to have revolutionised the milk and butter trade. So far the co-operative dairy system has proved a success, for they have generally paid their members 1*d.* per quart, besides returning the skim-milk and butter-milk free of charge.

The margarine trade has very much depressed the price of butter in Westphalia. Should the price of the quart of milk recede by only one-eighth of a penny, the Dairy Union would be the loser to the amount of 25,000*l.*

Since 1893 the Dairy Union supplies an instructor and an inspector. Besides these the union has a staff of teachers in dairying at a dairy school at Dortmund, in this way training efficient dairymen and dairy managers. Fresh dairies are being built every year, and in their turn join the Dairy Union.

The State supports the dairy union with a subsidy of 75*l.* per annum for educational purposes.

Westphalia has two agricultural colleges besides 12 farming schools, open in winter, and two agricultural schools open all the year round for peasants' sons.

One of the most important institutions in Westphalia is the Central Experiment Station, managed by Dr. König, in Münster. The institution is chiefly used by farmers, to check the dealers by getting them to guarantee the constituents of what they sell, and then getting the samples analysed at the station. The Central Experiment Station.

The analyses average as follows per annum :—

				Number.	
				From—	To—
(1) Manures	..	..	..	4,000	5,000
(2) Feeding stuffs..	..	..	..	1,500	2,000
(3) Seed purity and germinating powers	..	..	..	500	600
				6,000	7,600

The experimental station is a model one. There are seven assistant chemists.

The
Provincial
Farmers'
Club.

The Provincial Farmers' Club of Westphalia and Lippe numbers about 40,000 members.* Besides this farmers' club there exists a "Bauern Verein," or club of small farmers numbering 25,000.

The
"Warendorf"
stud.

In 1826 the State founded a stud of 24 stallions at Warendorf. Since then the province has increased the number to 100. The management of the station is entrusted to the charge of a retired cavalry officer. These royal stud stallions are of different breeds, Oldenburg, Holstein, and Belgian, and the owners of mares can for a nominal fee get the service of any stallion they may select.

The stallions are bought by a Royal Commission appointed for the purpose, and no private owner of stallions is allowed to take service fees without a licence granted under sanction of State authorities. Thus by legislation it is sought to improve the breed, in which direction much still remains to be done. In the season the horses are distributed throughout the district under charge of stud grooms to sub-stations.

Fruit-
growers'
Union.

A Fruit-growers' Union supplies its members with all necessary advice and information on the culture, and all the various questions connected with fruit growing.

With a view to giving a short description of agriculture in Westphalia I propose dealing with various districts, as farming is worked on different lines, according to climate, soil, and geographical position.

Regierungs-
bezirk
Münster.

The "Regierungsbezirk Münster" comprises a district of about 9,000 square kiloms., and contains slightly over 500,000 inhabitants.

The soil is partly sandy, strong clay, loamy, and partly moorland, four-fifths of which is in the hands of peasants, the remaining one-fifth being in the hands of the nobility, who seldom farm themselves, but let the land on lease to tenant farmers. Large forests are the exception, but the country is woody, and there is a fair proportion of forest and arable land.

Size of farms.
Wages.

The peasant holdings vary from 40 to 250 acres, exceptionally 1,000 acres. Besides these there are small holdings of 10 to 25 acres. The owners of these small holdings generally work as farm-hands on the larger farms. They earn about 1s. to 1s. 2d. per day, the larger farmers letting small numbers of acres to their farm-hands at a reasonable rent in order to have workmen in harvest time. This patriarchal system keeps the hands in the country, and prevents them from crowding the towns. Independent farm-hands earn from 10l. to 15l. and food, valued at 15l. per annum. Female servants get 9l. to 10l. per annum and food.

Climate.

The climate is mild and moist, and favourable to the growth of grass and trees, oak, beech, and lime growing very freely. The month of May is often wet and unpleasant. The summers are seldom hot and often wet; the autumn is the pleasantest season; winter only begins in January, and is seldom very cold.

* This club represents the interests of all its members.

The farmers generally adhere to a regular rotation of crops. Rotation of crops. On the sandy soil they have as a general rule adopted the system originated by Dr. Schultz Lupitz, which has become so popular throughout Germany.

As to stock-breeding, the class of horses kept are chiefly Stock-breeding. those of Belgian, Oldenburg, and Holstein. The State gives prizes to breeders for the best horses, either stallion or mare, of any particular breed. No stallion is allowed to serve mares unless passed as sound, and approved of by the State Commission for Horse-breeding.

The various districts can vote for a special breed of stallions to serve in the particular district, which is then supplied by the State from the royal studs.

The cattle raised is chiefly of the Dutch breed. The number of cattle has materially increased, whereas the total number of sheep has decreased during the last 10 years.

Pig raising and breeding has been a great success; the number has more than doubled within the last 20 years. The breed has been greatly improved by importing "Yorkshire" boars.

The second district "Regierungsbezirk Minden" I refer to Regierungsbezirk Minden. is more of an industrial than agricultural country; Bielefeld is the central town, the district is studded with mills and factories of all sorts. Gardening is a paying business, and the production of milk forms the chief aim of the farmer near the towns. Here too we find that they let plots of land to labourers at a nominal rent, so that they may have sufficient farm hands to work the larger holdings.

The next district we come to is that of "Paderborn," its area Paderborn. is 2,640 square kiloms. Land costs 10% to 240% per hectare (2½ acres). The forests nearly all belong to the nobility or the State. The larger farms average 150 to 500 hectares; those belonging to noblemen are mostly let. These estates are very highly farmed.

There are two large sugar factories, and sugar beetroot is Sugar factories. extensively grown. The sugar factory "Brackel" worked up Benefits of growing sugar beetroot. 825,600 cwts. of beetroots during one season, and the same factory manufactures sugar from 10,000 cwts. of beetroots per day. The factories have been in existence since 1884, and the effect of growing sugar beetroot and the cultivation necessary for growing a good crop has been of the utmost value to the soil. The land has almost doubled in value, as the crops following the sugar beetroot are so much heavier and better in every respect. The cultivation of sugar-beet in Germany has made many a man's farm pay, which previously was only kept afloat with difficulty. A good crop of sugar-beet means three or four consecutive good crops of anything you like to grow; and that is not all, for the certainty of a successful crop after sugar-beet is very much enhanced. Whereas formerly yields per acre varied largely, wherever sugar-beetroot has been successfully cultivated it has been found that yields are less variable and increase largely

This is due to the deep cultivation of the soil and the incessant hoeing necessary to produce that crop. Beetroot will not grow where weeds flourish, the latter must be got rid of by hoeing three to four times a year, and this constant hoeing and cultivation of the soil produces not only good beetroot but better consecutive crops.

The only drawback to the sugar industry in Westphalia, and particularly in the district in question, Paderborn, is the fact that sugar-beet cultivation necessitates a large number of farm hands. These are scarce and have to be got from the eastern provinces of Prussia. The rural population of the district crowd into the towns and mills where they earn more money. A carter gets 10*l.* to 15*l.*, and maid-servants 5*l.* to 8*l.* per annum, besides free board and lodging, and fuel and a plot of potatoes.

Regierungs-
bezirk
Arnsberg.

The last district of Westphalia I wish to mention is that known as the "Regierungsbezirk Arnsberg," with its population of 1,500,000. This consists of some of the most fertile land in Westphalia, such as that round about Soest, Lippstadt, Dortmund and Hörde, chiefly rich loam or clay soil. Large estates are the exception, and these belong to the nobility.

Co-operative
steam
ploughing.

The richest soil is in the Soest district, where there is a sugar factory and sugar beetroots are extensively grown. Here we find a steam-plough, owned on the co-operative system, which works successfully and leaves the owners a good profit out of the proceeds of hire to neighbours.

Farm hands.

In Westphalia in general where industrial enterprise is so great, and coal mining, iron foundries and mills of every description abound so plentifully, it is getting every year more and more difficult to obtain and keep good farm hands. The young people all go to the mines or foundries where they can earn three or four times as much as by working in the field. Farmers have to manage as best they can, and for the most part have to get a fresh supply of farm hands from distant provinces every year. These in their turn leave after or often before their term of service is out and go to the mines.

Horse-
breeding.

This uncertainty of retaining good carters and farm hands has influenced stock-raising considerably. The majority of farmers have found it too difficult to breed and rear high-class carriage or saddle horses, and have found it necessary to breed Belgian and heavier classes. For heavy dray and pit horses there is a good demand in the mines and for heavy freight work.

Thorough-
breds.

In Westphalia a few of the nobility who have large estates breed English thoroughbreds and train them for the races. There are a large number of race-courses in Westphalia, and racing is a very popular sport. One of the oldest and most popular courses is that at Goldschmieding, near Castrop, being one of the most difficult and interesting steeplechase courses of Germany. It is one of the few in private hands.

Stock
raising.

A great many farmers have given up rearing cattle, and find it more profitable to buy cows in calf or fresh milkers to supply the towns with milk.

In the industrial districts there is a good sale for pigs, the miners and factory hands all buying them at remunerative prices from the farmer for fattening.

The sale of fresh milk is a profitable one. In winter milk realises 2½d. and in summer 2d. per quart.

Goats are kept by the miners to supply their households with milk, but although statistics show 112,000 head in a single industrial district (Regierungsbezirk Arnsberg) I doubt whether they can be kept profitably, as the owners seldom have enough fodder for them in winter.

Thoroughbred fowls are kept extensively, and the large number of clubs show that interest in poultry is increasing. Thoroughbreds' eggs sell at 3s. a dozen.

Farmers in Westphalia have one great advantage over their brother farmers in eastern provinces, as there is a ready sale at fairly good prices for all farm and garden produce. Farmers are, however, becoming specialists as in all other callings, and try to make most out of a single branch of agriculture which seems "pro tempore" to pay best.

Before leaving Westphalia for a different part of Germany, The I should like to mention various institutions existing in the Rheinland. neighbouring province of "Rheinland" round about Cologne. Stock-breeding Here we find a large number of associations for stock-breeding, associations. with capital herd books.

Horse-breeding associations have their stud books. There, too, we find the State taking a great interest in it and subsidising the associations liberally. The State supplies 100 stallions from its stud at Wickratt, of which 91 are heavy dray of the Belgian type, eight are Hanoverian or Oldenburgs, and one a thoroughbred, supplied from Graf Lehndorff's State stud of thoroughbreds at Graditz.

Besides these 100 State stallions, the State Commission gives prizes to private owners, and gives annual licenses to serve mares in the province. In 1894, 94 such stallions were licensed and served mares at a fixed fee.

Associations among farmers are very plentiful, every village has its club or association to promote their general interests. There are no less than 40,000 members of such associations.

There are—

	Number of Members.	
	From—	To—
20 associations consisting of ..	100	200
17 " " ..	200	300
16 " " ..	300	400
5 " " ..	400	500
7 " " ..	..	Over 500

Besides these farmers' clubs there are—

	Number.
Horse-breeding associations	8
Bee-keeping associations	85
Poultry associations	21
Gardening and fruit-growing associations	66
Viticulture associations	16

The Central
Association.

The farmers' associations are all combined in one great Central Association.

In this way the latter has been enabled to found an experimental station of its own, with seven assistant chemists, who, in 1894, made 4,941 chemical analyses, of which 73 per cent. were manures, 14 per cent. feeding stuffs, 7 per cent. seeds, and 6 per cent. various analyses.

This experimental station also does very valuable scientific work in bacteriology.

Agricultural
education.

A further most valuable institution in the Rheinland is its agricultural schools, 22 in number. 12 more will shortly be opened. In these schools, on an average, about 600 young men are turned out per annum with a thorough theoretical and practical knowledge in all branches of farming.

"Raiffeisen"
banks.

The co-operative savings and credit banks, founded by "Raiffeisen" in 1849, thrive extensively and are a great success.

Farmers'
Union.

Besides these banks on a co-operative footing, there exists a union of all farming co-operative societies in the province; the latter number 114, of which 28 are dairies.

700 so-called agricultural casinos are also on a co-operative basis, and supply their members with manures, feeding stuffs, seed and machinery at considerably reduced prices.

In 1893 its Central Commission turned over 150,000*l*.

Fire and hail
insurance.

Running hand in hand with the co-operative institutions are the fire and hail insurance institutes, with which the large central agricultural associations arrange the premiums to be paid by its members. Recently farmers have insured their stock against disease, chiefly of an infectious nature, where slaughter becomes a necessity.

In these days of agricultural distress and depression it becomes every man's duty to use every lever available and possible to alleviate agriculture, which is so heavily burdened with taxation, and generally handicapped and in low water; certainly, we should take a hint from our neighbours' success and not be too conservative.

MECKLENBURG-SCHWERIN.

Turning in a northerly direction I should like to draw attention to the Grand Duchy of Mecklenburg-Schwerin, where, of

late, agriculture has improved very much, and from which I think we may also profit by experiences gathered there.

I spent some time among the farmers of Mecklenburg and got an insight into their modes of work, which I very much appreciated.

Geologically the land is in part diluvium and in part alluvium, and consists of marl, loam, clay, sand, gravel, turf, moor, humus and chalk. In the south-west there are some large gypsum works, and below that strata large salt mines are being opened out. Nature of the soil.

The soil varies considerably in quality. On the east coast, round about Schwerin, Malchin, Teterow, and Gnoiien, and also a great part of Strelitz, the soil is capital and contains a large percentage of chalk.

The south-western portions of Mecklenburg-Schwerin, and a certain part of Mecklenburg-Strelitz are very sandy. We also find moorlands which, however, are being planted with trees or brought into cultivation.

It is of special interest to note that the sandy soil of Mecklenburg contains a large proportion of potash. It is due to this that manuring with potash has not been successful there. The meadows are chiefly of a turfy nature, lying low, and are often subject to inundation. Potash in abundance in the land.

The Mecklenburg rivers and streams have very little fall, so that drainage of low-lying meadows is rendered difficult.

The cultivation of the moors in Mecklenburg, as in the rest of Germany, is extending considerably. It is carried out on the system known as the "Moordammcultuur," as originated and put into practice by Rimpau. Vast tracts of moors in Germany, formerly almost valueless, are being at present turned into fruitful districts bearing as fine crops as the very best land in the country. Some of the finest sugar-beetroots I ever saw in Germany were in Silesia on a moor, the field being cultivated and laid out on the Rimpau system. "Moordammcultuur."

The roots and leaves of the sugar-beet crops were so thick and large that our pointers and setters were absolutely unable to work up the partridges in them.

Mecklenburg-Schwerin covers a total area of 1,316,162 hectares; three-fifths of this is used for agricultural purposes, arable and grass; one-sixth consists of forests; one-twentieth of lakes; and one-tenth consists of waste land, farmyards, roads, &c. 61 per cent. consists of farms of over 250 acres, and 31 per cent. of farms of from 25 to 250 acres. Most of the farms are large and cultivated by their owners; few farms are let and small holdings the exception. Distribution of land.

The State has been trying to increase the number of small holdings, and every inducement has been given to the working classes to buy up small patches and thus become settlers for life. The migration of farm hands from the country to the towns had become so very alarming that farmers began to be obliged to get their carters and farm hands from eastern provinces. The Small holdings for farm hands.

farmers are only too ready to let small holdings at a nominal rent, or sell out small acres to their men to induce them to remain in the country.

As regards progress in agriculture Mecklenburg has been going ahead rapidly during the last 15 years; whereas formerly farming was carried out with as little capital as possible, to-day the land is very highly cultivated.

In former times grass and clover were grown extensively, and grazing cattle was the order of the day, the land being left fallow periodically and very little mineral manures being used; the crops were accordingly moderate, and not by any means as large as nowadays.

In the "thirties" the land was extensively "marled," and in the "fifties" the drainage of the land was taken in hand. This worked wonders and the condition of plant life was considerably improved.

Drainage.

Large tracts of land with poor soil were greatly improved by drainage, and at that time farmers thought they only had to drain the land in order to be able to induce the soil to grow unlimited numbers and quantities of crops, but they soon found out their mistake. The very high prices of cereals current in the "fifties" and "sixties" induced farmers to grow an unusually large proportion of corn crops. In many cases meadows and pastures were ploughed up and sown with corn, and the cattle were fed in the stalls.

Old methods
of farming.

They, however, did not realise that the land could not go on giving cereals for any number of years without the plant food being returned to the land in the form of manure. The farmers grew too few roots, and clover was the only green crop on the arable land. Reduced crops soon convinced them that farming on such a basis meant eventual ruin to the land, and a change for the better became a necessity.

Science taught tillers of the soil that if good crops were to be harvested regularly, the quantities of nitrogen, phosphoric acid and potash taken out of the land must be returned in the shape of sufficient manuring, with a surplus into the bargain.

High farming.

The Experimental Station of Rostock under the eminent management of Professor Heinrich during 25 years, and the founding of numerous sugar-beet factories, together with the cultivation of the beetroot, laid the foundation in the "eighties" of the high farming as seen to-day in Mecklenburg. It is characterised by the liberal use of mineral manures, and by the feeding of cattle with cake and meal, thorough cultivation and absence of fallow.

Naturally there are lands which do require certain periods of rest, but to let them lie fallow overlong would be a great mistake.

The stall-feeding of cattle has gained ground, pasture and clover fields have been reduced in extent to make room for roots. The old-fashioned style of tethering the cattle on the clover fields, still popular in the provinces of Schleswig and Holstein, is largely on the decrease.

As I have already pointed out sugar factories and sugar-beet-roots are the order of the day in Mecklenburg. Sugar factories.

In 1872 the first sugar factory was founded, but as a pioneer undertaking it took some years before it became remunerative.

At present there are 12 large sugar factories in Mecklenburg; they all run successfully. Only one of these is in private hands, the rest belong to co-operative societies. The shares are not on the market, being solely in the hands of the farmers who grow the sugar-beetroot. According to the price of sugar the factory pays the cultivator a certain fixed price per cwt., provided that the sugar-beetroot delivered contain a certain percentage of sugar.

The shareholders, who own shares according to the acreage of sugar-beetroot which they are able or willing to grow, receive their dividends at the end of the season. Generally they get the residue of the beet back gratis from the factory after the sugar has been extracted, and this residue forms a capital food in the winter for the cattle when mixed with other fodder.

The factories manufacture sugar from an average of 10,000 to 12,000 cwts., the larger ones from 20,000 cwts. of sugar-beetroot per day and factory.

Besides these industrial works, there are large potato distilleries and starch factories studded over the country.

In districts where formerly rape used to be grown for the sake of the oil, the cultivation of sugar-beet and the manufacture of sugar has taken its place. Tobacco is also grown but only to a limited extent.

Turning to stock-raising, Mecklenburg was known in olden times for the excellence of its sheep. Stock-raising : Sheep. The falling of prices in wool, however, greatly reduced the breeding and rearing of sheep. In 1860, 1,240,000 sheep were still kept, whereas in 1892 the number was reduced to 732,000.

The merino herds of Mecklenburg had reached a great superiority in the quality of the wool, and it is a matter of great regret that all the time, talent and money then spent to get the herds to such a pitch of perfection, should be wasted owing to the very unremunerative price of wool nowadays.

Of late years Mecklenburg farmers have crossed their merino herds with Shropshire and Oxford rams, in order to improve the quality of the mutton. This cross has proved very successful and popular. There are two great breeders of Shropshire and Oxford rams in Mecklenburg. The Shropshire are bred by a Mr. Brödermann, at Knegendorf, Plaaz, who is one of the first breeders of this class in Germany, taking most of the prizes at continental shows.

In contradistinction to the decrease in number of sheep, that of cattle has increased; in 1867 they numbered 246,210, and in 1892, 301,800. Cattle. It is an interesting fact that of these 69·1 per cent. are cows over two years old and giving milk. This is the highest percentage in Germany, Schleswig-Holstein coming

second with 60 per cent. This proves that Mecklenburg farmers breed cattle more with a view to milking properties than to meat-growing qualities. The breeds of cattle raised are chiefly the Dutch, East Frisian, and Breitenburger. Statistics of the year 1892 show that the value of the cattle in Mecklenburg was estimated at close on 3,000,000*l*. The Central Association of Mecklenburg has calculated the yearly average yield of a cow at 2,191 kilos. This works out to a total quantity of 456,630,692 kilos., having a value of close on 2,000,000*l*. These figures show clearly the importance attached to cattle-raising and breeding in Mecklenburg.

Co-operative dairies.

Equally important as the breeding of deep milkers is the co-operative system of dealing with the milk. The farmers have founded 85 co-operative dairies, and four more are just being formed. The co-operative dairies have been of the utmost importance to their welfare.

The small farmers have been able to realise a better price for their milk, and this fact in its turn has induced the farmers to feed more cake and meal, and thus produce more manure and better crops. These latter advantages alone are not to be underestimated; besides, co-operation in dairying has proved to the advantage of co-operation in general, and has led to the founding of a large number of co-operative businesses in other branches of agriculture.

Co-operative credit banks.

Co-operative credit banks are plentiful; and on the same principle societies for the purchase and sale of agricultural produce have sprung up as successful sequels to the co-operative dairies.

Horse-breeding.

The breeding of horses in Mecklenburg has not kept up the reputation it used to have. Only recently steps have been taken to regain lost ground. Stud books have been started for the various breeds of horses in Mecklenburg, and Belgian, Shire and Clydesdale horses seem to be the popular breeds, although some farmers give the preference to the Danish.

The number of horses bred has increased, but the quality of the majority has not much improved, with the exception of a few studs belonging to private owners. A large number of farmers buy up foals in Hanover and Oldenburg and rear them successfully.

Pigs.

Pigs of a very good Yorkshire type are bred, and there is a ready sale in Berlin and Hamburg for them; they are chiefly fattened on dairy skimmed-milk, butter-milk, barley-meal, and potatoes.

Agricultural associations.

Mecklenburg was one of the first countries in Germany to found agricultural associations to represent the interests of farmers. Its Central Agricultural Association is just celebrating its 100th anniversary, and most farmers' clubs are of 20 to 30 years standing.

Cost of land.

As regards the agricultural crisis in Mecklenburg, the depression was felt there among the farmers as keenly as in other parts of Germany, with similar climate and soil. Still, strange

to say, land is at a premium in Mecklenburg, so much so that prices are paid which can hardly yield even an interest on capital of 1 to 2 per cent. The reason of this is that there are always plenty of rich people, chiefly from Hamburg, who are willing to invest considerable amounts of money in land and estates, and Mecklenburg is one of the most favourite provinces for such purchases. The purchase prices stand quite out of all proportion to the income possible to be derived therefrom. On the other hand, peasants pay 25 to 30 per cent. less rent than they did 10 years ago. The latter is, perhaps, the best proof possible of the decline in income to be derived from land, and still, to judge by appearances, owners of property who have farmed themselves during the last 20 years seem to thrive and make a fair living out of the capital invested. Rent.

SAXONY.

To give a description of one of the provinces of Germany, which to the greater extent is highly farmed, I have chosen Saxony.

During the last 30 years the province has become an extremely industrial one, and the factories have drawn away from the farmer his very best hands. Formerly, the Saxon farmers got their hands from the mountains of "Eichsfeld," and later on from the eastern provinces. This led to a system of yearly importations of farm hands, beginning in the spring, known as the "Sachsengänger"; these hands are employed from spring till December, when they return to the eastern provinces. This exodus of workpeople from the east to the west has taken such dimensions that the eastern farmers complain terribly of their abler hands leaving their country during the best parts of the year, hence they are obliged in their turn to get their farm hands from Poland and Russia. Farm hands.
Immigration
from the east.

The Saxon farmers suffer acutely from the drawbacks of having to import these workmen from the east, as they can never be as good as those who live permanently in the district, and are likely to show far more interest in their work than the men from over the borders.

Still, wages being fairly high in Saxony, good hands are always forthcoming, for the Polish and Russian workmen, who practically live on bread, bacon, and "vodki" (distilled potato whisky), save enough during the summer to live all winter without working.

The province of Saxony contains some of the finest and best alluvial soil of Germany, such as that found in the districts of "Wische," "Böhrde," and "Goldene Aue," the subsoil being of a porous nature. That the soil is very good can be judged by referring to the land tax estimates; in 1864, out of the 3,435 square kiloms., 2,025 square kiloms. are arable land, and 600 square kiloms. of these are rated for taxation in the three highest Soil.

classes of soil (there being eight quality classes). The forests consist of every variety of tree, the soil being so good that it will grow anything.

The province being an industrial one there is a great demand for timber, and hence there is every inducement to grow it, prices ranging very high.

Waterways,
high roads,
railroads.

The chief waterway used for the sale of agricultural products is the River Elbe, of which 340 kiloms. run through the province; thus agriculture has the advantage of cheap transports. In the south there are the Saale and the Unstrut, in the north the Jeetze, and the Plauen canals, forming together further 316 kiloms. of cheap thoroughfares. Besides these 656 kiloms. of waterways there are 2,070 kiloms. of railroads, 5,500 kiloms. of provincial district and private highways, and 2,300 kiloms. of parish high roads. There are, therefore, altogether 10,526 kiloms. of transport roads of all sorts on an area of 3,435 square kiloms., or 3 kiloms. of transport roads per square kilom.

System of
farming.
French
deputations
sent to study
systems.

The style of farming is of such a very high class nature that in 1884 the French Government sent a deputation of the ablest farmers to study the means by which such astonishing results had been obtained.

I have not heard of the English Government having gone to such praiseworthy trouble of acquiring knowledge for the welfare of England's agriculture. Englishmen are much too conservative; this prevents them from studying the work of their neighbours with a view to learning and taking advantage of their experiences.

Origin of
successful
farming.

And now we come to the question as to what is the origin of all this successful high-class farming in Saxony; the answer is, that for the last 50 years or more Saxony has grown to be the first agricultural province of Germany, and serves as a model for the world, under the influence of sugar-beetroot cultivation.

The first sugar refinery was built in 1833, just outside the town of Magdeburg, and about the same time the first raw sugar factory was erected, which up to this day still prospers. At present, in the province of Saxony, there are 125, and in the neighbouring duchy of Anhalt there are 29 working. In the latter, the sugar-beetroot crop of over 45,000 acres is handled, and the former 125 factories manufacture sugar from 225,000 acres. These factories produce half the sugar made in Germany.

The
Nematode.

However, this large acreage of sugar-beetroot has its dangers, which must not be overlooked. A microscopical white nodule, known by the name of "nematode," attacks the fine rootlets of the sugar-beetroot and sucks the life blood out of the plant. Still, this disease only occurs when land is too often planted with sugar-beetroot. As long as farmers kept to bringing sugar-beetroot only once in a rotation of four to six years on the same field, no evil consequences were felt.

By degrees cultivation was developed more and more with the assistance of large quantities of mineral manures, and

farmers began to grow one-third of their acreage with sugar-beetroot every year. Some of them even went as far as to plant one-half of their arable land with sugar-beetroot. The latter crop brought a liberal profit, and hence the eagerness to plant over larger areas.

It will be realised in what a liberal way the farmers of Saxony manured their land, when I state that at present the soil is in part so very highly satiated with phosphoric acid that the application of phosphate manures has become superfluous during the last few years. The land contained more than sufficient soluble assimilable phosphates for the plants to feed on and realize a maximum crop.

Liberal
manuring.
Phosphates
superfluous.

Science has, however, successfully combatted the "nematode" difficulty, and farmers feel reassured and think the danger is over. It has been found that the "nematode" only vegetates successfully in certain soils and under certain conditions; these having been discovered, the disease can be effectually overcome.

Science to the
rescue.

Besides the possibility of ridding the crop of the disease, there are 1,075,000 acres of land in the first, second, and third quality classes available for the growth of sugar-beetroot. If necessary, there are further 655,000 acres of land in the fourth quality class available, which could feed not only the present but supply a still larger number of factories with sugar-beetroot. The districts need only be opened out with light railroads, and thus brought into direct connection with the factories.

Land
available for
sugar-
beetroot.

Hand-in-hand with the cultivation of sugar-beetroot go the barley and chicory crops. The latter has been grown extensively in Saxony since 1820, and has increased enormously. Saxony produces one-half of the chicory grown in Germany. The plant has often been used as a substitute for sugar-beetroot, where the latter had to be given up for a few years on account of the prevalence of the "nematode."

Barley and
chicory.

Some of the finest barley in the world is grown in Saxony, and "Saal" barley is well known and in great demand for breweries. This superiority is chiefly due to the deep cultivation necessary for producing a good beet crop, and almost entirely by judicious manuring.

German experiment stations have for years past made endless trials as to what mineral manures produce the finest barley, and in what quantities they must be applied. They have largely been carried through in the field in co-operation with the farmers.

Experimental
stations and
barley.

Hops grow well in the north of Saxony, and the vine grows freely in the south.

Hops and
vines.

Potatoes are largely produced for sale in neighbouring industrial districts of Saxony.

Potatoes.

A fact which English farmers will hardly realise as possible is that all cereals are hoed at least once, often twice and three times, a year. Hence it is that weeds in Saxony are the exception; sugar-beetroot must be hoed from three to five times. Many an English farmer will think hoeing too expensive, and not

Cereals hoed.

likely to be remunerative for a cereal crop, but the fact remains that it has proved itself highly so in Saxony, especially in conjunction with sugar-beetroot cultivation in the rotation of crops.

Seed and
gardening
establish-
ments.

It is in Saxony, too, that we find the largest and finest gardening establishments of Germany. There are firms round about Erfurt, Aschersleben, and Quedlinburg, with thousands of acres for gardening purposes and seed.

The sugar beetroot seed is chiefly grown in Saxony, and the firm of Gebrüder Dippe, in Quedlinburg, is as renowned there as Vilmorin in France.

Sugar-beet
seed.

Competition in the production of sugar-beetroot seed is very keen, and has been of the utmost value in the production of that seed, which will grow with a high percentage of sugar. The latter is of the greatest importance, and the factories generally require the farmers to grow such varieties as are known or guaranteed to produce a certain percentage of sugar if manured in a definitely prescribed manner, with fixed quantities of mineral and stable manure.

Gardening is carried on on a large scale, not only for garden seed, but hundreds of acres of onions are often seen in one field, and asparagus is largely grown and exported by the ton.

Sugar factory
companies.

Whereas in Brunswick the sugar factories are limited liability companies, the shares being owned by the public, in Saxony the sugar factories are either co-operative companies, with shares owned by the farmers growing and supplying the beetroot, or the factories are large limited liability companies, but whose shares are in the hands of farmers.

Crown and
State land.

In Saxony there are 90,000 acres which belong partly to the State and partly to the Crown. The above 90,000 acres lie round about Magdeburg, and form one-tenth part of all the State or Crown farms in Prussia.

Average
rents.

Whereas the average rent of all State farms in Prussia together amounts to 16s., the average rent paid in Saxony amounts to 34s. per acre.

Farmers men
of business.

Needless to say, the farmers of Saxony are all not only thoroughly competent in their calling, but merchants and men of business in every sense of the word. They look at farming as a business from beginning to end, and carry it on in a thoroughly business-like style.

Fixed
rotation of
crops
superfluous.

Saxony is in such a high state of cultivation that a fixed rotation of crops has gone out of fashion, or rather has become superfluous. A farmer in Saxony nowadays does not ask himself what rotation must I stick to, or even what rotation will suit my land best. He simply tries to find out what crops will pay him best, and he manures accordingly. Deep ploughing and a judicious application of manure do the rest for him. The deep ploughing is chiefly done by oxen, which in the following winter are fattened on the beet refuse of the sugar factories, while every spring or autumn a fresh supply is bought. The steam plough is largely used, and with it farmers plough as deep as 18 inches previous to every sugar crop.

As regards live-stock in Saxony the endless wars the province had to put up with were not conducive to progress in breeding high-class cattle; however, during the last 15 years Dutch and Simmenthal cattle have been bred successfully. Live-stock : cattle.

The large demand for good meat and milk has gradually induced farmers to breed better stock, and this feature has kept pace with the rise in population and general social improvement of the working classes.

The dairy trade has been revolutionised by the introduction of the separator and of co-operative dairies; the latter in their turn have induced the raising of a larger number of young stock, with butter milk, skimmed milk, and meal.

Nevertheless, the supply of young oxen bred in the province did not cover the yearly demand, on account of their being fattened for the butcher. Hence it became customary to buy up one and a-half to two year old oxen for fattening purposes. The meat trade.

Every year the province of Saxony exports 22,500 fat oxen, of which 15,000 head alone are slaughtered in Cologne, as "Magdeburger" oxen. 22,000 young oxen are bought up every year in other provinces and fattened in Saxony, 75,000 being the number kept on the sugar-beet farms alone. The young stock imported into Saxony is chiefly bought in Bavaria, round about Würzburg and Ochsenfurt.

The fall in the price of wool in Germany had the same effect in Saxony on the merino herds as in other parts. The price of high-class merino wool became unremunerative, and the consequence was that farmers began to cross their merino herds with breeds producing more mutton, and looked to the sale of the latter as a source of profit, combined with the sale of wool at less remunerative prices. On an average in Saxony a farmer fattens two sheep for every acre of sugar-beet he grows. This shows that the demand for fat sheep runs up into hundreds of thousands. Farmers who rear their own sheep fatten one to every acre of sugar-beet grown. Sheep.

One of the more recent sources of profit is the cross of merino ewes with English-bred rams. The first cross has proved to be the best and most profitable for fattening lambs, and so farmers have kept up their merino herds pure, and crossed the ewes with either Shropshire, Hampshire, or other English-bred rams. The fattening of the first cross lambs has become a very remunerative branch of farming. Some farmers have continued the crossing of half-bred merino Shropshires with Shropshire rams, and have gradually got a breed known as the "Merinofleischschaf," which they keep up as such, without further crossings with Shropshire rams. This breed combines excellency of wool and tender mutton.

As regards pig-breeding, I am proud to say that the English pig is the favourite. The different breeds were introduced some 15 years ago, and have ousted the Saxon one completely. Still, latterly a movement is apparent against an excessively large proportion of fat to lean meat, as found on the thoroughbred

English breeds, and efforts are being made to lessen this evil by cross breeding.

Horse-
breeding.

Saxony is not by any means a horse-breeding country. The farmers are all too busy with the high farming of the arable land to take interest therein. They give the preference to Belgian horses for farm work and heavy sugar-beet loads.

Associations.

In Saxony as in other parts of Germany, associations are of the greatest importance for the interests of the farmers.

In 1842 a Central Agricultural Association was formed for the whole province, and at the time 12 farmers' local associations joined that body; of these the Halberstadt one had been founded in 1819. Since then 105 local associations, with 14,000 members, have also joined.

Functions.

The function of the Central Association is to disseminate the agricultural improvements of the day among its members, and especially to test the practical value of scientific researches and results for the furtherance of their interests. All new scientific agricultural experiments carried on in Germany are tested, and all the members have the benefit of advice gratis.

The Central Association conducts experiments independently or at the suggestion of its members, either on a small or—in the field—on a large scale, and publishes the results.

In this way farmers no longer blindly follow in the footsteps of a few scientists without continual testing-proofs, nor do they, as is too often the case in England, scoff and jeer at agricultural science and scientific experiments. In Germany farmers work in unison with their experimental stations, thus keeping in constant touch with their scientific advisers, who are eminently popular amongst them. This is partly due to the high agricultural and scientific education which most German farmers of any standing have gone through, and hence their appreciation of scientific researches in these hard times.

The farmers help the scientists by carrying out field experiments on a large scale; the less educated smaller farmers soon learn to value science when they see what can be done with its aid. The scientists mix constantly with farmers, to discuss the prospects of experiments, and the latter often go to the Central Association to hear a lecture on any important question of the day.

Experimental
station of
Halle.

In 1859 the Central Agricultural Association of Saxony founded at Salzmünde, near Halle, an experimental station, and has since always kept in touch with the agricultural University College of Halle a/S. This station employs eight chemists and one botanist as assistants, and a managing agricultural chemist.

Since 1889 the same association founded a branch station at Magdeburg, with one assistant chemist and one botanist.

The Central Association has spent 10,000*l.* in the erection of suitable buildings for the experimental station, and also for a high-class laboratory. The yearly expenses are met by fees for analyses and by subsidies from the State and the province.

As regards agricultural education, the University College of Halle a/S. is the most eminent of its kind in Germany, and the teaching agricultural staff surpasses probably any in the world. Agricultural education.

I had the pleasure of taking a degree at the University, and cannot speak too highly of the professors, who lecture and superintend all the different branches of scientific research.

Such names as those of Professor Dr. Kühn and Professor Dr. Märcker are well known, both in England and the United States of America, in connection with agricultural science, and Kühn especially was one of the early pioneers of that science and agricultural education.

Besides the University College of Halle, the province of Saxony has two farming colleges and six agricultural schools open in winter.

Travelling lecturers give lectures wherever there is a demand for knowledge and advice in any part of the province by appointment.

Out of the farming associations the co-operative societies with various objects have arisen. I draw special attention to eight co-operative associations, consisting of 1,217 members, with the object of maintaining co-operatively 86 stations for breeding-bulls, to serve at a nominal fee for members. Co-operative associations.

Wherever one may turn in Saxony, one finds that farmers have helped themselves along, and battled against bad times by co-operation among themselves and by valuable assistance from the province and State.

Such institutions as the Central Agricultural Association, with its two experimental stations, and especially the University College of Agriculture of Halle, cannot be too highly praised.

We must never forget that medical science at one time was revolutionised by chemical analyses and physiological studies, whereas in olden days medicine was practised much as a matter of routine, simply by experience.

It is an incontestable fact that the chemical laboratories of the agricultural colleges at the universities of Halle, Berlin, and the numbers of similar university colleges of Germany have revolutionised agriculture, and are leading the way and opening up new fields of resources for the benefit of agriculture all the world over.

Nowadays, we know the chemistry of the soil, the plants, the live stock, the manures, the foods; thus agriculture to-day is as much a science as in olden times it was a matter of purely practical experience.

"Moordammcultuur" as a Means of Rescuing Ireland's Moorland Farmers, and of Increasing the Fertility of British Moorland.

We have heard a great deal about agricultural distress in Ireland lately in the papers. Very interesting descriptions and details of the distress in the West of Ireland, particularly in the county of Mayo, have been given. I was much interested in Agricultural distress in the west of Ireland.

Proposals to
alleviate the
distress.

the proposals to alleviate the evil. They consist firstly in building railways and opening up the agricultural districts by means of light lines; secondly, the purchase of the land by the cotter; thirdly, arterial drainage; fourthly, technical education; fifthly, building of suitable cottages; sixthly, the founding of egg and poultry associations; seventhly, the purchase of "Bouillie-Bordelaise" spraying machines for potatoes.

"Moordamm-
cultur."

Advantages
of the system.

To these I propose to add another suggestion, which not only applies to the present distressed districts of Mayo and the whole west of Ireland, but to the greater part of that country, and to a great many parts of the British Isles in general. That is, the introduction of moorland cultivation, known in Germany as "Moordammcultur," invented by its founder, Herr Rimpf. Thousands and thousands of acres of bogs and wet boggy moors in Germany have been brought into cultivation by this simple method, and where formerly nothing but heather would grow, you may see the moor to-day bearing as fine and as heavy crops as some of the best land in the country. I know of hundreds of farmers who in Germany owned farms, part of which, say half, were moorland peaty bogs; by the adoption of the above-named system, they have doubled the value of their property. They have been enabled to keep twice the number of cattle, augmenting the amount of manure in proportion, and to almost double the crops in their old fields, and their income in consequence.

No stable
manure
necessary.
Super-
abundance of
nitrogen in
the moorland.
Additional
fodder crops.

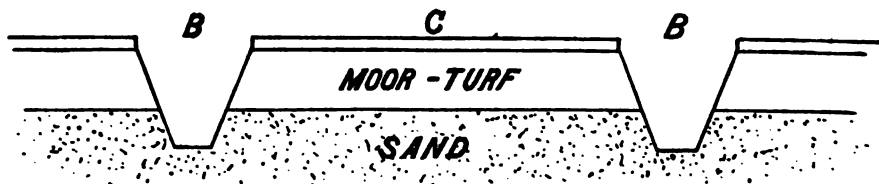
The gain all round is prodigious, which is accounted for by the fact that the most expensive of plant food, nitrogen, is contained in superabundance in the moorland, and the "Moordammcultur" needs no stable manure, as periodical manuring with phosphates and potash alone are necessary to produce full crops.

All the additional fodder crops on the "Moordamm" are fed to the cattle (duly increased in number), and the manure thus produced can be wholly devoted to the remaining or original high-lying part of the farm; I know men who have laid out "Moordamm" fields, and farmed them in the summer, with the help of a few horses and mineral manure, thrashed out their crops in autumn, and then closed up their quarters for the winter and gone to town, returning in the spring to sow their fields again.

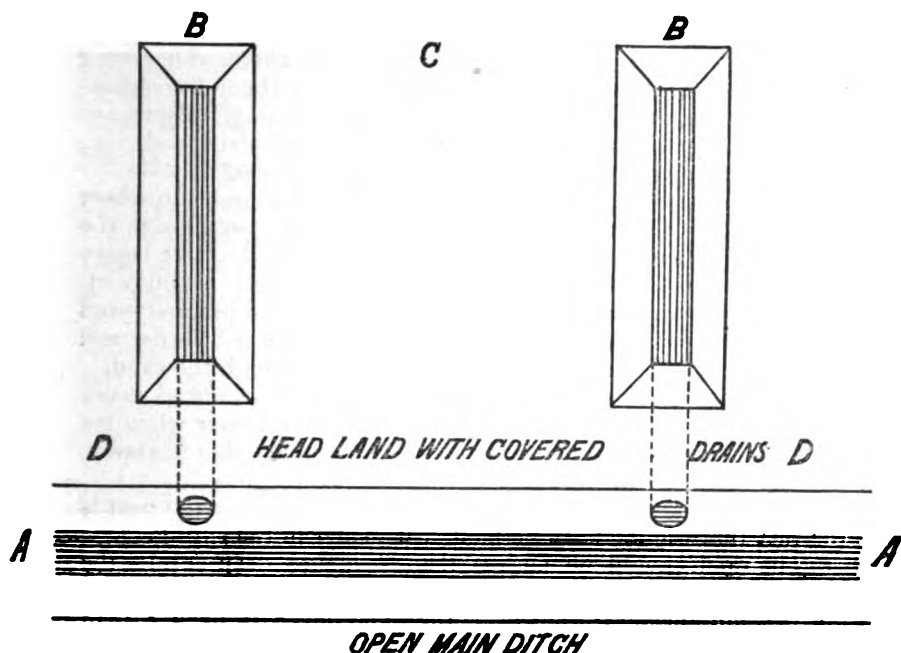
System of
lying out.

The "Dammcultur" is as simple as it is cheap; it merely consists of open ditches 20 to 25 yards apart, leading into a main ditch at right angles to the former.

The accompanying illustrations will give an idea of how the ditches are excavated:—



Cross section "Moordammcultur."



Ground plan, bird's-eye view, "Moordammcultuur."

BB are the open ditches, the excavations of which are used in the following way: the peaty soil is thrown out and thinly spread over the ground CC between the ditches BB; below the peat lies the sand, which is likewise spread over CC to a depth of 4 to 5 inches. In this way about 23 inches of the sand is dug out of the ditch, and spread over the intermediate ground. The depth of the ditches is regulated by that of the peat, it being necessary to get about 2 feet of sand below the latter.

The original water line must be lowered by 3 feet. The ditches BB do not run right through into the main ditch A, a headland DD being left for convenience of cartage. This headland DD is about 10 yards broad, and the connection between the ditches BB and the main drain A is made with a drain pipe DD, 6 inches in diameter.

By means of these ditches, and the raising of the land level, a thorough drainage is effected. The atmosphere is enabled to penetrate into the soil thoroughly, and the acids contained in the land are washed out.

The most important part of the system is the layer of sand laid on the top of the moor, which is not mixed with the moorland, but is kept perfectly isolated; even when ploughing the isolation must be strictly adhered to.

Importance of the sand layer. Isolation of sand and peat necessary.

Experience has proved that this separation gives better crops than could be got by mixture of the moorland subsoil with the sand.

The reason is to be found in the fact that the sand covering the peat keeps the latter in a more favourable state of decomposition and moisture, and prevents it from hardening. By means of the decomposition in the peat the necessary plant food, viz., nitrogen, becomes soluble and accessible to the crop.

Mechanical
influence of
the sand.

The mechanical influence of the sand is favourable to plant life; plants get a firmer hold than in the loose peat, hence the evil consequences of frost to the plants are avoided. The boggy moor becomes solid enough to carry a cartload of 50 cwt. Besides, the same prevents weeds from growing too profusely and smothering the crop. The sand is free from weed seeds, and those contained in the peat cannot germinate through the sand.

The straw grown is stronger, and the wheat does not so easily fall; the quality of the root crops is proved to be better when the peat is covered with sand. The potatoes become richer in starch, and the roots less hollow.

A special advantage in having a layer of sand over the peat is the fact that the land can be ploughed sooner in the spring.

Depth of
sand layer.

The sand should be no less than 4 inches deep or else the plough is apt to turn up peat and mix the two, and weeds become a great nuisance. If, however, the sand layer is deeper than 6 inches it prevents the atmosphere from penetrating to the peat, and there is the further disadvantage that the rootlets take longer to get through the sand into the richer subsoil.

The ditches.

The ditches are generally dug 4 to 5 yards broad. Less than 4 yards is not desirable. Their depth depends upon that of the peat and of the sand underneath. Enough sand should be dug out to make a layer of at least 4 inches on the peat-damm. The sides of the ditches can be fairly steep, as the peat does not slip. Of course, to effect efficient drainage sufficient fall and outlet must be provided.

Fixed
rotation of
crops not
necessary.

It is not necessary to adhere to a strict rotation of crops, as anything can be grown on the moor-damm; cereals of all sorts, capital potatoes, rape, first-class barley and oats, peas, beans, vetches, all grow equally well.

Net income
derived from
"Moordamm-
cultur."

As to the net income from cultivating the moor according to this system, the figures vary according to the chemical composition of the peat, and according to the cost of making the damms. Estimates vary in Germany as to net income possible from 2*l.* 10*s.* to 3*l.* 12*s.* per acre.

Cost of
cultivation
per acre.

The cost of cutting the open drains and covering the damms with sand is estimated at from 5*l.* to 15*l.* per acre. The average cost of bringing moorlands into cultivation according to the "Moordammcultur" system in Germany may be put down at from 9*l.* to 10*l.* per acre.

In addition to the great tracts of bog lands thus brought under the plough, thousands of acres still await the same reclaiming hand in Germany.

Naturally it means capital, but why should not the State come forward to the rescue of the poor Irish farmers in the west of Ireland, who, through no fault of their own, are in great distress, and lend a few millions at a low rate of interest for this reproductive work, and thus turn such parts of a country which depends upon agriculture for the existence of its people into a fruitful one, whose crops could challenge the world.

Once the Irish farmers have been shown how to grow the finest crops on their moors, with a good profit to look to and ready capital at hand to start with, the distress will become a thing of the past, and Ireland will agriculturally be as rich as any country.

Naturally every start is difficult, and a good deal of energy is necessary, but why should not that which has been successfully carried out in Germany turn out a boon to Irish farmers? Likewise there are thousands of acres of rich moorland in England awaiting cultivation.

Nitrogen, the most expensive plant-food the farmer has to provide, and if scanty to buy with hard cash, is contained in superabundance in all moors, so much so that neither farmyard manure nor nitrates need be applied, and still there those acres lie unheeded, and are not producing more than they are worth for shooting over.

Surely here is a great future for Ireland's moors, and the most useful way a State can improve the condition of its citizens.

As an illustration of high-class farming in Saxony, and as an example of a farmer having to a large extent cultivated moorland on the "Moordammcultuur" system of Herr Rimpau, which especially shows the advantages of such cultivation, I propose to give a short sketch of an estate in Saxony called "Cunrau."

The same consists of the home farm, Cunrau, and the farms Rappin, Hahnenberg, and Belfort.

The estate comprises 4,062 acres, of which 2,550 are arable land; 1,700 of these have high-lying sandy soil, about 100 acres of a moory nature or sandy moorland, and 850 acres of cultivated moorland laid out on the Rimpau system. There are 250 acres of meadows, of which 16 are of natural meadow, 176 of irrigation meadows, and 58 of "Moordamm" meadows. There are 808 acres of pine forest; the rest of the area is made up of roads, ditches, yards, buildings, gardens, &c.

The high-lying land is top dressed with marl from pits on the farm itself, only a small portion being carted from the neighbouring farms.

The "Moordamm" fields were started in 1863, and gradually increased up to 1891. The estate belonged to Mr. Rimpau, the inventor of the "Moordammcultuur" system, and one of the most eminent of Saxony's farmers.

The buildings were partly burned down in 1850, and were rebuilt on a more approved fashion. The house is very large and comfortable; there is an outhouse or barracks, built to hold 120 farm hands in the summer, and there are seven large barns.

- Permanent and portable railway lines on the farm.** The farms are connected with the main railway and the farm lines run alongside the granary and distillery; this facilitates the loading and unloading of all grain, cake, meal, coals, straw, and spirit direct into and out of the trucks; besides this the lines serve for the transport of all the sugar-beet and potatoes grown; portable lines run from the sugar-beet and potato fields to the permanent railway. The trucks are drawn backwards and forwards by horses and oxen.
- Managing staff.** The whole estate is managed by one man, Inspector Berger, a thorough man of business, and a very practical farmer, who has two or three young men to give his orders to with regard to actual farm work. A book-keeper keeps the books, and does all correspondence. On the farm there are one head stableman, two foremen in charge of the oxen, one farmyard foreman, and seven over the farm hands.
- Farm hands.** During the summer 300 hands are employed, of whom 40 live in farm cottages, 50 in their own or rented houses, and 210 in the farm barracks.
- There are two wheelwrights and three farriers on the farm. The distillery has a manager of its own, but the workmen are taken off the farm. For the forest there is a keeper, and a special manager-foreman for the management of the irrigation meadows.
- Teams.** There are 13 pair of Danish horses, and 45 pairs of Bavarian oxen employed for farm work.
- Steam plough.** Besides, there is a steam plough, which ploughs up 400 acres of land 12 inches deep. 100 head of East Prussian steers are kept, which are bought up when they weigh 7 to 8 cwts., and are sold fat when they reach 12 to 14 cwts. There are 400 head of sheep for breeding purposes; the lambs are kept for a year, then sold for fattening. The ewes are chiefly bought from the best Rambouillet merino herds, and are always crossed with thoroughbred English rams.
- Stock.**
- Extent of rails.** The farms are provided with four miles of railway lines, of which one and a-half miles are portable, without which the cultivation of the sugar crop would be hardly possible on the "Moordamm," as it would be difficult to cart the heavy sugar-beet loads off the peaty moors in a wet autumn.
- Farm work.** Over tramways, two pairs of horses, from a distance of four miles from the homestead, are able to haul 1,200 cwts. of sugar-beetroot per day. The portable lines are also used for transport of potatoes, grain in sacks from the granary, and often for that of earth.
- Thrashing tackle.** The estate owns two complete sets of steam thrashing tackle, which are used for a few weeks during corn harvest, and then for a few weeks after the sugar-beet harvest. In winter, only one of the two sets of thrashing tackle is kept going.
- Sales of straw in bales.** In consequence of the comparatively small number of stock kept, and the enormous crops of straw raised on the "Moordamm," about 14,000 cwts. of straw is annually sold. In order to facilitate these sales by easier means of transport, a straw

press is used during the harvest, alongside of the thrashing machine; it presses the straw in bales as soon as it has come out of the thrashing machine, and is thus thrown direct into the railway trucks ready for sale. Most of these bales go straight to the neighbouring towns, without being unloaded and handled. The cost of the straw press paid itself in a single year by the saving in not having to handle the straw.

The farm implements are all first class, such as the deep-Implements. working ploughs with three shares from Eckert and Co., Berlin, two-share and sub-soil ploughs made by Bethye Lippehne, cultivators, harrows, and rollers in every necessary shape and form are plentiful. The carts are all home-made in the estate smithy and wheelwright shops. The sowing machine is by Siedersleben, Bernburg, a "Saxonia" type, which took the first prize at the International Chicago Fair in 1893. It has a breadth of 12 feet. Besides this there is a 12-foot one and a 6-foot one by Zimmermann, also a high-class German maker.

For spreading mineral manure, the machine by Schlör is used, besides three hoeing machines by Bölte, and mowing machines. The potatoes are planted with a machine by Unterilp.

As regards wages, the total annual expenditure for wages has Wages. increased in proportion to the yearly increase in average of "Moordamm" cultivation. The older foremen get 15s. per week all the year round; the farm hands (men) get 1s. 9d. in summer, and 2s. per day during harvest time, but after the sugar-beet-root harvest only 1s. 6d. per day. The women get 1s. 1d. per day in summer, and 1s. 6d. per day during the six weeks in harvest; after the sugar-beet harvest only 10d. to 1s. per day. The ploughboys get 1s. 3d. to 1s. 6d. per day; those over 18 years old get 1s. 9d. during the summer months. Besides this, every imported farm hand gets lodging in the barracks, firewood, and 25 lbs. of potatoes per week. The home farm hands get a cottage lodging, five-eighths of an acre of potato land, and one-sixth of an acre of linseed land. To work, plough, and sow this land, they employ the draught horses off the farm.

Piece-work is proportionally higher than day-work. For Piece-work. For hand-mowing, binding and setting up corn they get 3s. 6d. to 4s. 8d. per acre; on the "Moordamm," 5s. to 6s. per acre. For hoeing cereals, drilled eight inches apart, they earn 3s. 2d. per acre; for hoeing roots, according to the crop and amount of weeds, 3s. to 5s. 7d. per acre; for hoeing potatoes they earn 1s. 4d. to 3s. per acre; taking up sugar-beetroots costs 16s. to 17s. 6d. per acre; taking up potatoes is paid at the rate of 1d. to 1½d. per cwt. With the exception of steam thrashing, nearly all the work is done by piece-work.

Working hours are from 5 a.m. to 7 p.m. from April 1 to Working hours. September 30, with one hour's rest for dinner in the middle of the day, and two half-hour's rest for breakfast and coffee respectively. From October 1 to March 31 the working hours are from 6 a.m. to 6 p.m., with one hour's rest for dinner, and only one half-hour's rest for breakfast.

Proportion of crops planted. As regards the proportion of the various crops planted, and the rotation of the same, the high land is planted half with roots and "leguminosæ" and half with cereals.

Rotation. The principle followed in the rotation of crops is that leguminous plants or roots should be grown alternately with cereals. Nevertheless, according to the state of market prices, a larger proportion of the one or the other variety is grown.

The "Schultz-Lupitz" system. By means of improved scientific farming, especially by green manuring, it has become quite immaterial on sandy soil whether potatoes or roots, rye, oats, or wheat are grown, provided the system of farming invented by Dr. Schultz-Lupitz, and known under the name of the "Schultz-Lupitz" system, be adhered to.

In consequence of high farming nowadays, big crops may equally well be got out of sandy soil. Quite recently it has been proved that the sandy soil, if treated properly, will give the most remunerative crop in proportion to the outlay and cost of production.

"Moordamm." Rye, oats, and roots are chiefly grown on the "moordamms;" on the latter rape, peas, chicory, and clover are not paying crops; winter and spring-sown wheat are uncertain crops, but barley, especially winter-sown barley, beans, and potatoes have proved excellent for "Moordamm" cultivation. Sugar-beetroot seed has also been successfully grown thereon.

On the high land, rye, spring-sown wheat, oats, clover, lupins, roots and potatoes are grown; on the low land, rye, winter and spring-sown wheat, oats, barley, and mixed seeds (oats and vetches), vetches, beans, roots, and potatoes. On both lands the half-and-half proportion of cereals on the one hand, and roots and leguminous plants on the other hand, is kept to as nearly as practicable. Of the roots, potatoes and sugar-beetroots form one-third of the whole arable acreage.

Soil cultivation. The cultivation of the soil is necessarily a very thorough one. Directly after the mowing machines, the ploughs follow to turn the stubble, and seeds are at once sown in for ploughing in green, which is done in the very same autumn, with a horse-plough, or in the spring with a steam plough; if with the latter, the manure is spread on the green crop during the winter.

Potato cultivation. The land thus worked is levelled and hoed, and is ready for the "Unterilp" potato planter; this machine makes the holes; the potatoes are planted and covered up by hand. The fields are harrowed over just before the tubers shoot up above the surface, in order to destroy the weeds. When the land is free from weeds, the potatoes are ridged up and harrowed, then they are hand-hoed and horse-hoed, and finally ridged again.

The sugar-beetroot crop. For the sugar beet crop, the lupins and manure must be ploughed in in the autumn, so that the moisture of the winter may be retained in the land as long as possible in the spring. It is then only necessary to loosen the ground to sow the seed in moist land, and then to roll it in. For the latter purpose the "Cambridge" roller is used, as on sandy soil there is the danger of the wind sweeping the sand together, and thus preventing rapid germination, if a common smooth roller were applied.

For rye, the land is ploughed seven to eight inches deep, The rye crop. harrowed and rolled, and sown 8 to 14 days later.

For oats and spring-sown wheat the land is ploughed in the Oats and autumn, and is prepared in the spring similarly to the sugar- summer beetroot fields. wheat.

If the rye is to follow clover, the latter is deeply ploughed up Rye after at the end of July, rolled, harrowed, and a shallow furrow is given clover. again in the autumn before sowing.

On the low-lying land it is important that the ploughing and harrowing should be done as often as possible in order to kill the weeds that grow very freely.

On the "Moordamm" the sheaves of wheat are put up in "Moordamm" groups, and the plough is run through the rows, turning the stubble as fast as possible; the land is harrowed 14 days later, and after four weeks ploughed again and harrowed. In the late autumn another furrow is given, and in the spring, the last previous to sowing and harrowing. Here the plough is preferred to the cultivator on account of the more destructive effects of the former. In dry weather ploughing is all the more necessary, in order to get the sugar-beet seed into moist, fresh soil. After a sugar-beet crop, the land is ploughed once in the autumn and again in the spring. cultivation.

On the sandy soil the cereals are all drilled, the drills being Drilling. 4 inches apart, and on the "Moordamm" 8 inches, even rape being thus sown. Experiments have been made with oats, sowing them with drills 10 to 12 inches apart. Beans are sown 12; sugar-beetroot seed in the high-lying land, 14½; and on the "Moordamm," 13 inches apart. Potatoes are planted 16 to 18 inches apart. On the high-lying land, all the summer-sown cereals are harrowed and rolled if sown with clover or seradella.

On the low-lying land, harrowing the cereals is not sufficient, Cereals it is necessary to twice hoe and weed them in order to master harrowed and the freely growing weeds. The "Moordamm" rye is not hoed. The sugar-beetroots are hoed as often as possible, and get every possible attention, as nowadays, with such very low cereal prices, it is the only paying crop, and hence every inducement possible is given to increase it. Machine hoeing among the sugar-beetroot crops on the sand-covered "Moordamm" became an impossibility on account of the knives sliding in the sand.

As regards manuring, the annual production of stable manure Manuring amounts to 90,000 cwts., which is exclusively used for sugar- Stable beetroot and potato crops; 700 to 800 acres are sown with legu- manure. minosæ every year as green manure for oats.

Of mineral manures, the following quantities are used: Mineral 14,000 cwts. of kainit, 4,000 cwts. of superphosphates, and manure. 2,200 cwts. of nitrate of soda. One single year shows the following figures for manure:—

				Valued at—	
				£	s.
Stable manure, 98,000 cwts.	..	..		1,720	0
Green manuring, 200 acres lupins, and 120 acres seradella	..	..	..	300	0
Kainit, 15,800 cwts.	..	..	..	865	0
Basic slag, 4,200 cwts.	..	..	..	525	0
Superphosphates, 150 cwts.	..	..		27	10
Nitrate of soda, 2,200 cwts.	..	..		900	0
Total	..	..	..	4,337	10

On the high-lying fields the potatoes get either 320 cwts. of stable manure per acre, plus $\frac{1}{10}$ cwt. per acre of nitrate of soda, or 160 cwts. of stable manure, green manuring, 5 cwts. of kainit, $1\frac{1}{2}$ cwts. of basic slag, and $\frac{1}{4}$ cwts. of nitrate of soda per acre.

Manuring for
the sugar-
beetroot and
other crops.

The sugar-beetroots get besides a little superphosphates and 5 cwts. more of kainit, and the amount of nitrate of soda is raised to 4 cwts.; the rest of the crops get 5 cwts. of kainit, $1\frac{1}{2}$ cwts. of basic slag, and, according to the previous crop taken, $\frac{1}{4}$ cwt. to $1\frac{1}{2}$ cwts. of nitrate of soda per acre.

On the "Moordamm" sugar-beetroot crops get 10 cwts. of kainit, $1\frac{1}{2}$ cwts. of basic slag, $\frac{1}{4}$ cwt. to $1\frac{1}{2}$ cwts. of nitrate of soda per acre; all other crops get $6\frac{1}{2}$ cwts. of kainit and $1\frac{1}{2}$ cwts. of basic slag to the acre. Latterly every crop has received $8\frac{1}{2}$ cwts. per acre of kainit, in order not to be obliged to give the sugar-beet crop so much kainit all at once. The kainit is strewn on the land for the green manure, or sown in the autumn in the potato and sugar-beet fields.

In illustration of the rotations and manuring, I refer to the following figures:—

A. The "Cunrau" farm, in six fields of 55 acres:

1. Potatoes, in green manure: 160 cwts. of stable manure, $1\frac{1}{2}$ cwts. of basic slag, and $\frac{1}{4}$ cwt. of nitrate of soda per acre.
2. Rye: 5 cwts. of kainit, $1\frac{1}{2}$ cwts. of basic slag, $1\frac{1}{2}$ cwts. of nitrate of soda per acre; lupins sown and ploughed in after harvest.
3. Potatoes, in green manure: 5 cwts. of kainit, $1\frac{1}{2}$ cwts. of basic slag, and $\frac{1}{4}$ cwt. of nitrate of soda per acre.
4. Rye: 5 cwts. of kainit, $1\frac{1}{2}$ cwts. of basic slag, and $1\frac{1}{2}$ cwts. of nitrate of soda per acre; lupins sown and ploughed in after harvest.
5. Sugar-beetroot, in green manure: 256 cwts. of stable manure per acre, 10 cwts. of kainit, $3\frac{1}{4}$ cwts. of basic slag or superphosphates, and $3\frac{1}{4}$ cwts. of nitrate of soda per acre.
6. Summer wheat or oats: 10 cwts. of kainit, $1\frac{1}{2}$ cwts. of basic slag, $1\frac{1}{2}$ cwts. of nitrate of soda per acre; seradella sown and ploughed in after harvest.

B. The "Rappin" farm, in 10 fields of 75 to 100 acres :

1. Potatoes or sugar-beet, in green manure: 160 cwts. of stable manure, 5 cwts. of kainit, $1\frac{3}{4}$ cwts. of basic slag, and $\frac{1}{4}$ cwt. of nitrate of soda per acre; the roots get 5 cwts. of kainit, and $2\frac{3}{4}$ cwts. of nitrate per acre in addition.
2. Rye: 5 cwts. of kainit, $1\frac{3}{4}$ cwts. of basic slag, and $1\frac{3}{4}$ cwts. of nitrate of soda per acre; lupins sown and ploughed in after harvest.
3. Oats, in green manure: 5 cwts. of kainit, $1\frac{3}{4}$ cwts. of basic slag, and $\frac{1}{4}$ cwt. of nitrate of soda; clover sown in.
4. Clover: no manure.
5. Rye: 10 cwts. of kainit, $1\frac{3}{4}$ cwts. of basic slag, and $\frac{1}{4}$ cwt. of nitrate of soda per acre; lupins sown and ploughed in after harvest.
6. Oats, in green manure: 5 cwts. of kainit, $1\frac{3}{4}$ cwts. of basic slag, and $\frac{1}{4}$ cwt. of nitrate of soda per acre; seradella sown and ploughed in after harvest.
7. Potatoes, in green manure: 160 cwts. of stable manure, $1\frac{3}{4}$ cwts. of basic slag, $\frac{1}{4}$ cwt. of nitrate of soda per acre.
8. Rye: 5 cwts. of kainit, $1\frac{3}{4}$ cwts. of basic slag, and $1\frac{3}{4}$ cwts. of nitrate of soda per acre.
9. Potatoes: 320 cwts. of stable manure, and $1\frac{3}{4}$ cwts. of nitrate of soda per acre.
10. Rye: 5 cwts. of kainit, $1\frac{3}{4}$ cwts. of basic slag, and $1\frac{3}{4}$ cwts. of nitrate of soda per acre; lupins sown and ploughed in after harvest.

C. The "Germenauer" farm, light sand; and "Look" farms, moory soil. Each four fields of 62 and 21 acres respectively.

1. Potatoes: in green manure, 160 cwts. of stable manure, $1\frac{3}{4}$ cwts. of basic slag, and $\frac{1}{4}$ cwt. of nitrate of soda per acre.
2. Rye: 5 cwts. of kainit, $1\frac{3}{4}$ cwts. of basic slag, and $1\frac{3}{4}$ cwts. of nitrate of soda per acre; clover seeds sown in.
3. Clover: no manure.
4. Rye: 10 cwts. of kainit, $1\frac{3}{4}$ cwts. of basic slag, and $1\frac{3}{4}$ cwts. of nitrate of soda per acre; lupins sown and ploughed in after harvest.

On the "Moordamm" a six years' rotation is kept up, and the manure applied, as already mentioned.

1. Sugar beetroots.
2. Cereals.
3. Sugar beetroots.
4. Cereals.
5. Beans and vetches.
6. Cereals.

The yields vary considerably, increasing in a fairly wet season on the sandy soil, and decreasing on the lowlands and "Moordamm," whereas the effect of a dry season on the latter is most favourable, as they can stand any amount of drought.

Tables showing cost of production per morgen, cost per centner, actual receipts, profit and loss.

The following tables show the figures, as taken from the estate books of "Cunrau," as to yields, cost of production, and prices, during four consecutive years, showing how variable the results are.

German.				English.	
1 morgen (= 25 are) ..	..	..	=	0.618 acre	
1 centner (= 50 kilos.) ..	..	..		110.2 lbs.	
1 mark (= 100 pf.) ..	..	..		1s.	

SANDY SOIL.

Year.	Actual Cost of production per Morgen.	Yield per Morgen.	Cost per Centner.	Actual Receipt per Centner.	Per Morgen.	
					Profit.	Loss.
	Marks.	Centners.	Marks.	Marks.	Marks.	Marks.
SUMMER WHEAT.						
1892	57.16	6.82	8.04	8.05	...	0.40
1893	75.99	4.75	15.39	7.11	...	39.19
1894	73.82	7.00	10.59	6.93	...	25.00
1895	...	11.22	...	...	...	...
Average yield ...	...	7.44	...	...	...	...
WINTER RYE.						
1892	84.20	7.82	7.73	7.05	...	5.98
1893	59.66	5.56	10.32	6.69	...	79.13
1894	60.04	7.09	8.27	6.39	...	14.23
1895	...	8.19	...	...	...	...
Average yield ...	...	7.16	...	...	...	...
OATS.						
1892	60.32	8.92	6.66	7.72	10.01	...
1893	56.72	2.63	20.04	8.63	...	34.53
1894	60.20	12.72	5.49	6.51	9.79	...
1895	...	13.93	...	...	...	...
Average yield ...	...	9.55	...	...	...	...
SUGAR BEETROOT AT FACTORY.						
1892	70.62	97.77	0.90	1.15	23.86	...
1893	...	...	...	...	...	...
1894	141.29	178.36	0.83	1.23	61.59	...
1895	...	195.00	...	...	...	...
Average yield ...	...	157.04	...	...	...	...
POTATOES FROM CELLAR.						
1892	119.84	94.58	1.51	1.46	...	4.79
1893	109.86	88.79	1.46	1.28	...	15.61
1894	111.65	112.72	1.21	1.66	49.21	...
1895	...	121.53	...	...	...	...
Average yield ...	...	104.40	...	...	...	...

MOORDAMM CULTUR.

Year.	Actual Cost of production per Morgen.	Yield per Morgen.	Cost per Centner.	Actual Receipt per Centner.	Per Morgen.	
					Profit.	Loss.
	Marks.	Centners.	Marks.	Marks.	Marks.	Marks.
WINTER WHEAT.						
1892	61.48	6.90	9.48	7.77	...	11.02
1893	71.86	12.90	5.81	7.78	19.85	...
1894	69.76	12.92	1.69	7.14	20.60	...
1895	...	18.70	...	...	...	...
Average yield ...	...	11.80	...	...	...	...
SUMMER WHEAT.						
1892	53.45	7.40	5.11	8.05	28.66	...
1893	56.29	11.10	5.45	7.11	15.91	...
1894	57.71	10.00	6.06	6.98	6.59	...
1895	...	10.10	...	...	...	...
Average yield ...	...	9.60	...	...	...	...
WINTER RYE.						
1892	53.68	12.8	4.23	7.05	31.61	...
1893	56.28	16.4	3.74	6.89	38.24	...
1894	55.04	9.7	5.34	6.39	11.07	...
1895	...	10.1	...	...	...	...
Average yield ...	...	11.9	...	...	...	...
OATS.						
1892	51.18	12.0	4.44	7.72	37.67	...
1893	53.03	5.4	11.35	8.63	...	12.47
1894	57.10	11.8	5.75	6.51	11.08	...
1895	...	11.4	...	...	...	...
Average yield ...	...	10.1	...	...	...	...
BEANS.						
1892	64.02	8.4	7.16	6.64	...	4.14
1893	64.77	10.3	6.89	6.50	3.79	...
1894	71.36	10.5	7.37	6.21	...	12.42
1895	...	10.4	...	...	...	...
SUGAR BEETROOT.						
1892	88.51	138.00	0.92	1.23	40.21	...
1893	93.00	188.00	0.66	1.27	104.34	...
1894	96.75	165.00	0.67	1.23	92.29	...
1895	...	148.00	...	...	...	...
Average yield ...	...	159.00	...	...	...	...

The rainfall in centimetres (0.4 inch) was as follows at
"Cunrau":—

Year.	April.	May.	June.	July.	August.	September.
1892	16.6	43.8	69.9	27.6	39.9	46.9
1893	0.7	23.1	32.3	32.0	36.1	74.7
1894	7.2	16.5	85.7	33.6	80.4	50.5
1895	32.8	63.0	108.0	104.2	80.5	10.3
1896	61.9	17.4	...	...	...	...

The total yield of corn in 1895 was as follows in centners (110·2 lbs.) :—

Articles.	Sandy Land.	" Moordamm- cultur."	Total.
	Centners.	Centners.	Centners.
Winter wheat	..	593	593
Summer wheat	1,806	602	2,408
Winter rye	6,893	3,617	10,510
Oats	2,284	1,010	3,294
Oats and vetches mixed	..	616	616
Beans	..	671	671
Barley	..	123	123
Mixed cereals	..	1,051	1,051
Total	..	..	19,266
Potatoes	94,977	..	94,977
Roots	12,675	57,439	70,114
Root seed	..	1,349	1,349

Of the above yield the following amounts are consumed on the estate :—

For—	Amount.	
	Corn.	Potatoes.
	Centners.	Centners.
Seed	1,800	11,000
Fodder	4,000	..
Food	..	2,500
Distilling	900	30,000

The surplus is sold.

The following amounts are bought for fodder :—

	Amount.
	Centners.
Wheatmeal	200
Cotton-seed meal	1,000
Sugar melasse	400
Rye bran	1,000
Rice meal	200

The yearly, 1894-95, expenditure was :—

	Amount.
	£
Weekly and daily wages	3,750
Piece-work	1,650
Salaries	900
Cost of keep for hands	1,800
Total	7,600

On July 1, 1895:—

	Amount.
	£
Valuation of livestock	3,500
„ implements, carts, &c. ..	4,000

The live-stock valuation on July 1 did not include 100 fat steers which had just been sold, subsequently thereto a fresh lot of 100 were bought for fattening.

The total turn-over of the estate per annum averages 25,000*l*.

I think I can hardly give a better proof of the advantages of cultivating moorland than by the foregoing description and figures of "Cunrau," showing, as they do, how these farmers benefit therefrom. Proof of advantages of moorland cultivation.

Rimpau's system of cultivating the moorland is spreading rapidly in Germany, and it will not be long before the larger part of the vast areas of moors in the empire are under tillage. Thousands upon thousands of acres will yield profits, and thus the present barren, waste lands will be converted into interest-bearing capital to the owner, and producing so much larger crops to feed the ever-increasing population. I know of a large farmer in Pommern who for years was scarcely able to make ends meet in farming, and whose property lay alongside the moors, part of which he owned. He started cultivating the latter, year by year extending this operation. One of his chief sources of profit now is in the sale of bale pressed hay; besides its harvesting, the only expense he has is the annual mineral manuring of phosphates and potash. Spread of moorland cultivation in Germany.

The rest of his farm consists of sandy soil, which, as we have seen at "Cunrau," does not give a profit; he planted the whole of it with pines, after having reclaimed a sufficient area of moorlands, and the latter yield a large return, whereas formerly the cultivation of the sandy soil caused him serious losses. Planting pines on sandy soil more profitable than farming at a loss.

In addition to hay, he sells pressed straw, and nearly all his corn, except what he needs for the working teams, and his balance at the end of the year is now on the right side.

The advantages are so clear that every farmer who can get credit and owns moorland has started its cultivation.

Of course a considerable outlay is necessary; there is the first cost of laying out the dams, and then the farmer must have ready cash to buy the phosphate and potash manures every year. But once he has got the moors into cultivation his income is a certainty. As I have pointed out before this is where the beneficent efforts of the credit associations and credit banks come in, where on the co-operative system a farmer, if known to be a good business man, can get ready cash at a nominal rate of interest. Outlay of capital necessary. Co-operative banks to the rescue.

State help and
services in
Germany.

One of the greatest services the German State is doing the country is the laying down of "Moordamms" on an extensive scale, and letting the land to farmers when reclaimed, or cultivating these lands and planting them with pines. What a national monument to see thousands of acres of former bogs all laid out with the "Rimpau Moordammcultuur" system and growing fine forests.

Raiffeisen
credit banks.

Of German institutions, the credit banks initiated and founded by F. W. Raiffeisen have relieved many a farmer from pecuniary trouble, and have proved a boon to thousands of people engaged in agricultural pursuits.

This system differs from that of "Schulze Delitzsch" chiefly in extent and limit, inasmuch as the Raiffeisen Banks give credit to the members of the respective bank only, thus restricting their sphere of action to the immediate district, and giving credit merely to those members whose status is known to the manager and to a large number of those directly interested in and connected as co-operative shareholders with the particular bank, which is worked by a committee of shareholders without remuneration for their trouble; this self negation all concerned know how to appreciate; great care is observed in taking credit and raising loans; a boon is more especially granted in this way to the smaller peasant landowners.

All the members are personally acquainted with each other, so being a self-help controlling body the risk in money-lending for farm working purposes is reduced to a minimum and the necessary cash is provided for wages, manure, implements and so on, so as to enable the small farmer to await the proper time to thrash his corn without undue haste and refund the money borrowed, thus the receivers' hand-to-mouth business is avoided.

The basis of the institution is so solid that in times of great commercial crisis, where speculating city banks break down or have to call in their money, the Raiffeisen co-operation weathers the storm.

The "Schulze-
Delitzsch"
credit banks.

The "Schulze-Delitzsch" credit banks are worked on a broader basis, as they do not restrict their business to a particular district; the field of their operation is practically unlimited, the object being to meet the personal credit demands of people in all trades and callings, but these banks are also run on the co-operative lines. The money is not lent on mortgages but on personal credit for shorter or longer periods, with the right of renewal to meet the passing and changing requirements of trade.

Schulze-Delitzsch, in his own words, gives us the reasons which prompted him to found his first credit bank, he says: "If a single workman or artisan with no means or capital of any kind to back him up, tries to get credit of any sort he finds himself thwarted at every turn, or if he does find some one to lend him money the conditions of such a loan will, in nine out of 10 cases, be exorbitant. This state of things, however, changes directly a group of workmen or artisans combine as a body to apply for

credit from one and the same bank, the risks which the bank would run in a loan to one single person becomes minimised, so soon as they are no longer concentrated on one loan to one man, but taken up by a group of men under a solidarity guarantee for the one the responsibility being each for one and one for all."

Originally the "Schulze-Delitzsch" banks were founded for small artisans, but gradually extended to all classes, and statistics show how largely they have spread and benefited agriculture. Many a farmer on the verge of ruin has been able to tide over bad times through the prompt aid thus afforded. Many a small sum of money in the shape of hard earned savings is nowadays deposited in the banks and brings interest which formerly was either wasted, lay idle, or locked up in a cupboard.

The management of the "Schulze-Delitzsch" banks is not like that of the "Raiffeisen" honorary. Hence great care is necessary in the choice of managers. The danger of "Schulze-Delitzsch" banks lies in the fact that their loans are practically unlimited as to extent, the capital is in constant circulation, whereas the safety of the "Raiffeisen" bank lies in its localisation under definite limits.

The development and success of the former is, however, proved by statistics:—

In 1860 there were 133 unions with 31,603 members. In 1880 there were 906 unions with 460,656 members.

In 1860 the 133 unions had granted loans to the amount of 25,435,467 marks. The credit unions had a fund of 1,586,571 marks, and the savings deposits amounted to 1,967,482 marks.

In 1880 the 906 unions had made loans to the amount of 1,447,526,317 marks, the credit unions had a fund of 118,427,428 marks, and the savings deposits amounted to 122,072,777 marks.

Agricultural distress in Germany having been so keenly felt, the German farmers came to the conclusion that personal credit must be made attainable freely and easily, and that the only way to get it was by co-operation, into which they were forced in self-preservation, as city banking firms gave up making loans to farmers under any conditions or circumstances.

Wealthy banking firms and rich capitalists were all willing enough to lend money on real estate if sufficient security was forthcoming; but personal credit is what German farmers wanted, it is indispensable to buy stock, mineral manures, cake, meal, seed, tools, machinery, and pay wages, in short to run the business. All the union requires as to security is the co-operative guarantee of the members of the co-operative society or body of men of recognised standing.

This ready cash is a necessity and must be got in the spring to enable the farmer to sow his fields, and he must have ready cash to reap his harvest and thrash his corn before he gets 1st. for his year's labour. Therefore requirements of credit had to be satisfied if land was to be cultivated at all.

Co-operation
and personal
credit.
The
Württemberg
Union.

Consequently co-operation was tried as the only way out of the difficulty and has turned out a great success.

To give an example I mention the Württemberg Credit Union: its sole object is to give personal credit to its own members, who consist of landowners of every description. The loans are granted for specified periods of time, either for repayment in full when the specified time has expired or in instalments during a term of years; the members, shareholders being themselves the debtors and creditors of the union, receive all the dividends in proportion to their shares, and thus the double benefit of credit and profits. The most important rules are the following:—

1. Loans are granted from 25% upwards, for a short or long specified period of years, and annually paid off by instalments.

2. Yearly interest on loans consists of the current rates (to-day $3\frac{1}{2}$ per cent.), amortisation of loan capital and subscription to reserve fund, altogether these three items amount to 4.45 per cent. At this rate, in 50 years time the loan capital would be paid back. In this way farmers who probably used to have to pay at least 5 per cent., and in addition their provision and commission rates to city banks for the loan of money, get cheaper money and the possibility of amortisation at approximately 1 per cent. per annum.

3. The union's loans run on as long as it suits the member, and notice to pay up can never be given till the limit of time has expired.

4. The union issues shares to its members of 100%, 50%, 25%, 15%, 10%, with interest payable half-yearly. The union is never bound to cash the shares, but every year a certain number are drawn by lot and paid off, so that all are renewed every 50 years.

5. Loans are granted up to half the value of the applicant's property.

These are but a few of the more important bye-laws of the union which is considered an eminently safe one.

Statistics of
credit unions.

Statistics show that there are altogether in Germany over 8,000 credit unions with 1,430,000 members. In 1882 there were 2,500 unions, with only 700,000 members. In 1882, out of 1,000 working people, 37 belonged to societies. In 1895, 62. Altogether there were close on 800,000 farmers who were members. In 1882 out of 1,000 self-supporting farmers there were only 154 in credit unions, compared to 300 in 1892.

All these unions and associations have, of late, experienced an augmentation. In some parts of Germany 50 per cent. of the farmers are members of a union loan bank.

Sundry
functions of
loan banks.

Besides giving credit to their members, many of these agricultural loan banks buy seed, fodder, mineral manures, machinery, tools, in fact any farm requisite for their members at reduced prices. Many loan banks have also undertaken the sale of farm produce "in corpore" for their members.

Sale
associations.

Of late agricultural sale associations have been founded for the sole purpose of selling agricultural produce at enhanced

prices by handling the products in a commercial way. These associations are registered as "co-operative societies with limited liability."

Their object is, firstly, to have a central office, to act as agent, Their objects. to represent the interests of the farmers, and keep in touch with the best markets.

Secondly : to build granaries for sorting and drying all cereals. Drying houses are erected for hops. 75 per cent. of the value of products is paid on delivery, the balance on the sale being effected.

Thirdly : to improve the members' agricultural productive powers by supplying the farmers with seed and mineral manures of guaranteed constituents and value, likewise with machinery, tools, &c.

In this way the sale association handles a large amount of Sales, and how effected. corn properly, and markets it in a business like way at the most appropriate time of sale. The association has the very best machinery possible for cleaning the corn, and thus is in a position to supply its members with first-class seed, and in hop-growing districts has built hop kilns, and formed associations for the handling of hops with the best machinery, thus securing better quality and price.

Some large sale associations have become big mercantile firms, Associations acting as business firms. buying produce from non-members, and thus increasing the turnover and profit for the members. The farmers are no longer mere tillers of the soil, but are, and have to be, merchants as well.

In many cases it has been the State which, without risk, laid State help for associations. the foundation-stone to many a granary or hop kiln on the association system which affords such a strong guarantee.

It is in Würtemberg where especially the State has in very many cases given a helping hand to build granaries for small farmers, lending as a rule up to 20 per cent. of the amount necessary. In one case I know of in Würtemberg, 1,400*l.* was lent for a single granary, and in hundreds of others the farmers have got loans of several hundred pounds sterling for the erection of either granaries or hop kilns on the co-operative sale association system.

Whereas in England railways belong to and are managed by joint stock companies, the German railways are almost entirely the property of and managed by the State, which is gradually buying up the few which still remain in companies' hands. German railway goods rates, as bearing on agriculture.

Although I am by no means an advocate of State ownership in such matters, still I must confess, to judge by results in this country, that the system has advantages which it would be short-sighted to overlook as compared to the former system as now carried out in England. State ownership in Germany.

The general public, especially the English farmers, have but too good reason to be dissatisfied with the present goods rates in England, as has been so often illustrated by the English press.

I should like to draw particular attention to the fact, that one

Chief
advantage of
State
management
of railways.

of the chief advantages of the State system is the opportunity which it affords of rates being fixed upon a sound uniform basis to meet the requirements of the country and exigencies of trade in such a way as is best calculated to develop all branches of industry at home, including the oldest one, that of agriculture.

In Germany there is a very complete system of preferential tariffs run upon the lines just indicated, and owing to the depression in the prices of agricultural products an exceptional tariff has been introduced called the "Noth Tarif," distressed agricultural freights, under which more especially manures and manure stuffs of all sorts are carried at greatly reduced rates, it being one of the chief objects of the railway "Fiscus" to strengthen the hands of the farmer against foreign competition.

Under the agricultural co-operative system the German farmers avail themselves of the lowest freights on all materials, fodder, &c., they require, and on all products they send to market, by loading in quantities of at least 10 tons.

Here preferential rates are of an immense advantage to the farmers, whereas in England they are dead against the English tiller of the soil, the advantages there being reaped by his foreign competitors.

The passenger service in England is perhaps cheaper and better than in Germany, but the freights in England are by no means fair to the farmer.

Why should not the latter have the same rates as the foreign farmer, and allow him to compete at least on an equal footing as regards railway rates?

The British
farmer sadly
handicapped.

He is handicapped enough with taxes, high rents, high wages, &c., without being still further burdened with preferential rates to his competitors. The high railway rates swallow all the profit on the produce grown on British soil long before it gets to market, and there are cases in which the agricultural produce rates amount to more than the value of the agricultural produce sent.

Benefit of low
rates to
German
farmer.

In Germany the farmer has the benefit of special reduced freights, in view of the existing depression in the agricultural industry, and he has the double advantage (should he through his co-operative associations export the products of his land to England in quantity) of availing himself of English railway preferential rates, whereas under similar arrangements the same road would be open to British agriculturists by forming combinations in self-defence, as individually they have no chance, especially under legislation as it now stands in England.

German
agricultural
implements.

During the last 10 years German manufacturers of agricultural machinery have made rapid strides ahead, so much so that I am of opinion that to-day some agricultural implements manufactured in Germany are superior to any in the world. I attribute this success to their keeping in closer touch with the leading farmers, and being only too glad to take hints and suggestions from the men who have experience in the use of implements and have the best opportunity of detecting defects. The natural

German
implement
manufacturers
in touch with
farmers.

result is improvement. In this way a manufacturer goes ahead all the time, and his machines and implements get gradually closer to perfection year by year. It is only by using a machine for a few seasons that its failings and weak points become evident.

My experience in England is that farmers are unduly conservative in implements. They stick to an old pattern of plough and cannot be got to try anything new. I would like to give some results of my 11 years' experience as a farmer in Germany, England, and the United States of America on this matter. In these three countries I would especially point out the implements and machinery manufactured in Germany as, to my mind, far superior to any other, and from which we might with advantage take hints as to improvements effected during the last decade.

First, I wish to refer to sowing machines. It is my opinion Sowing machines. that the drills, as constructed nowadays in Germany, are superior to any in the world. I refer especially to those turned out recently by the following German manufacturing companies:—Actien-Gesellschaft, H. F. Eckert, Berlin, "Berolina" sowing machine; Fr. Dehne, Halberstadt, No. 4 H. S. drill; W. Siedersleben and Co., Bernburg, "Saxonia" drill, "Germania" drill, "Normal" drill; E. Zimmermann and Co., Halle a/S, "Superior" drill. Of these I should especially like to draw attention to the sowing machines built by W. Siedersleben and Co., of Bernburg, which took the first prizes at the International Fair of Chicago in 1893. They are highly to be recommended for their quality, good workmanship, and thoroughly reliable sowing.

Next to sowing machines I wish to mention ploughs as we Ploughs. find them to day in Germany. I refer especially to such firms as Rudolf Sack, Leipzig-Plagwitz, and Actien Gesellschaft H. F. Eckert, Berlin. The former makes a speciality of ploughs, and turns out different patterns, according to the nature of the soil. These vary in weight, size, angle, &c., and the different shapes number over 100.

The ploughs are throughout of iron, and still light; R. Sack and Co. also build a patent plough of their own, which can be used for 26 different and distinct operations in ploughing, ridging, hoeing, potato-lifting, beetroot-lifting, and subsoil ploughing, extirpating, &c., simply by loosening a few screws and substituting the various shares.

In ploughs English farmers are very conservative, I have often seen ploughs used in England which are utterly unsuitable for the nature of the soil being tilled.

Mowing machines are not largely made in Germany, as the Mowing machines. manufacturer finds he is not able to compete with foreign makers, such as the following:—Adriance, Bindlochine, Osborn, W. A. Wood, Kearsley, Hornsby, Massey Harris, Bisset, Samuelson, Mercer, McCormick, and Harrison, McGregor and Co. The binders made by these firms are also far superior to anything Binders. Germany, so far, has been able to produce.

Thrashing tackle.

Although I am of opinion that the best thrashing machines are still made in England, yet I believe Germans are beginning to compete. Some eight years ago English thrashing machines were considered the best; recently some German makers have turned out capital tackle, and the latter are spreading very rapidly. Firms, such as Wolff, in Germany, build first-class engines, and Heinrich Lanz, in Mannheim, has achieved a great reputation in Germany for the excellency of his engines and thrashing machines.

Horse rakes.

Horse rakes are being successfully built in Germany. Although the well known American firms, such as Osborn, Stoddard, &c., still export to this country, where makers such as Eckert, Schmidt, Siedersleben, and Zimmermann are gradually getting to the front, and supplying the demand with the home-made implements.

Hay-making machines.

Both the rotary and fork hay-making machines are generally in use; the Howard, Massey's Advance, United States of America, are largely in use, but are being gradually substituted by those of Eckert, Dehne, Siedersleben, Zimmermann, Mayfarth.

Boilers for steaming.

Boilers are being largely used in Germany by farmers, and probably the best maker in Germany to-day is A. Ventzki, in Graudenz, West Prussia, who makes a speciality, and takes most of the Continental show prizes.

Harrows.

Harrows, both for ploughed and meadow land, chain harrows, are manufactured largely in Germany; and here again I wish to point out the diversity of harrows built to suit all sorts of land. In quality and practical usefulness they are quite equal to any made in England. The following are some of the best manufacturers in Germany:—C. Beermann, Berlin; Fr. Dehne, Halberstadt; H. F. Eckert, Berlin; Gross and Co., Leipzig-Eutritzsch; Fr. König, Gerabronn; Mayfarth and Co., Frankfurt a/Main.

"Acme" harrows.

Acme harrows, originally invented by a German, which are generally and largely built in the United States of America, and very extensively used there, are now being manufactured in Germany by Gross and Co., Leipzig-Eutritzsch, and are spreading rapidly.

"Trieurs."

One of the most widely spread and useful machines among German farmers of late years is the "Trieur," a machine for cleaning the seed for the purpose of sowing and ridding it of all weed seeds and impurities of any kind. These machines are a speciality of a firm on the Rhine, Mayer and Co., Kalk.

Of the most recently patented and new agricultural machinery, I should mention the following:—A milk weighing machine, by O. Lindemann, Hasselrode a/H., Province of Saxony; the "Victoria" chaff-cutter, by G. Schmidt, Merkendorf, Auma, Sachsen Weimar; a newly patented Trieur "Universal," by Mayer and Co., Kalk o/Rhine; the new "Excelsior," by Fr. Krupp-Grusonwerk, Magdeburg Buckau; a Hay and Straw Press, worked by steam, by Gebrüder Böhmer, Magdeburg; a Patent Fire-proof Lantern, by G. Zimmermann, Stuttgart; a

Patent Sack-lifter and loader, by Schlote, Hildesheim; a Potato-planter, by Thomann, Halle a/S.; a Root-lifting machine, by Thomann, Halle a/S.; a Root-lifting plough, by Göleke Borne, Province of Saxony; a Root-harvesting machine, by Schütz and Bethke, Lippehne; Steam Turbin Milkwarmer and pasteurizing apparatus, Steam Separator combined with pasteurizing apparatus, Alfa Laval Steam Turbin Separator P., Alfa Laval Hand-separator, construction B, 1896, all by the Bergedorf Iron Company, Hamburg; Hydraulic Wine and Fruit Press, by Schumacher, Söllingen.

Machines for spreading mineral manure are largely used in Germany, and are exceedingly well built. The best of these are the Schlör, Riemer, Fricke, Schwartz, and Hampel. Mineral manure-spreading machines. Rollers.

Agricultural rollers of very good quality and various shapes, sizes, and weights are built by the following firms:—

Beermann, Berlin; Eckert, Berlin; Gross and Co., Eutritzsche; Mayfarth, Frankfurt a/M.; Schmitz, Mechernich.

Needless to say that as the co-operative system of dairying has increased in Germany, dairies have almost sprung up as fast as mushrooms; the factories for manufacturing dairy appliances have kept pace with the demand. Outfits are supplied by some firms at very moderate prices. Dairy machinery.

Taking the agricultural machine industry as a whole in Germany, it has kept pace as regards improvements with the general machine industry in other branches, and I may confidently state that German agricultural implements and machines are certainly as good as any other country's, with the exception of mowing machines and binders, in which the United States of America excels, and steam ploughs and steam thrashing machinery, in which England still takes the first place. The agricultural machine industry of Germany as a whole.

Germany is making rapid strides in machinery all round, and it will not be long before she is at the top of the tree, if progress continues as steadily as during the last 10 years.

BAVARIA.

Before closing my report I should like to point out a few things of interest in Bavaria and Southern Germany.

Bavaria possesses 160,000 acres of moors; the gradual reclaiming of which has been progressing during a long time. In the last century an area of 18 square miles was taken in hand and cultivated. Moors.

Formerly want of capital and scant population were serious impediments, difficulties vanishing under increasing population and co-operation. Whereas formerly a farmer could not obtain capital for drainage, money was forthcoming, as soon as a body of farmers stood guarantees for the loan.

From 1852 to 1888 1,370 co-operative societies were formed, and 1,370 extensive drainage and irrigation works were completed; the latter covered an area of 140,000 acres, 45,000 acres were drained at a cost of 140,000*l*. Co-operative drainage and irrigation.

The success of the enterprise is easily proved by a few figures.

Increase of
meadow
acreage.

In 1863 the total extent of meadows in Bavaria amounted to 2,995,000 acres; by 1883 it had increased to 3,182,000 acres, that is, in 20 years' time we have an increase of 187,000 acres of meadows. Since 1883 the work of drainage and irrigation has continued, and the total acreage of good meadows has largely increased, and this without the arable acreage having decreased.

The meadow area of Bavaria forms one-fourth of the whole agricultural employed acreage.

State help.

In these vast drainage and irrigation works the co-operative societies, *i.e.*, the farmers, have received considerable and most valuable help and professional advice from State official civil engineers.

Arable-land.
Barley.

66.88 per cent. of the total area of Bavaria is arable and garden lands, and a large proportion of this is grown with barley. This large acreage of barley is naturally due to the great demand from the Bavarian breweries. It is Bavaria's pride that Bavarian beer may only be brewed from hops and barley. Penalties for transgression of this law are exceedingly heavy, and it may be confidently stated that it is very seldom that a brewer in Bavaria has to be fined, as the State control is very sharp.

Beer
production.

Of the 14,427,000 hectolitres of beer brewed in Bavaria per annum, 12,332,000 hectolitres are consumed in the country. Per head of population in Bavaria 221.2 litres of beer is drunk per annum.

Brewing an
agricultural
business.

Brewing in Bavaria still continues to be an agricultural business: there are 12,506 breweries in the country, of which 5,311 are run by farmers, who brew beer on a more or less extensive scale for sale in the neighbouring districts. In nearly every estate of any extent you find a brewery which supplies the whole neighbourhood with beer. These country breweries buy their barley from the neighbouring farmers of the district, and feed off the refuse beer-slops and maltcombs, partly on the home farm and partly sell the surplus to any farmers wishing to buy for feeding their live-stock.

Badly harvested barley is not bought by breweries. The deficit is bought from Austria and Hungary.

State
experiments
for barley.

The State experimental stations afford valuable help in propagating good and suitable malting barleys. It has been found that by careful selection of the varieties and propagation that the quality of malting barley can be greatly improved and the value enhanced. The brewer is willing to pay higher prices for such barley varieties, and this is a great help to the farmer, who in this way nets a profit, when formerly there were losses.

Barley
varieties.

Barley known in Bavaria as "Unterfränkische Gerste" barley is found to be superior to the "Chevalier." Even a variety known as "Franken" is found superior to the popular "Chevalier," though the latter can stand more nitrate of soda without deteriorating effects for the brewer.

The experiments have shown that a high-class sample of

"Chevalier" deteriorates in this country after four years' sowing. Most interesting is the fact proved by experiment that climate, rainfall, etc., here turned a fine sample imported from the well-known seed grower, Hallet, in three years' time into Bavarian barley of only medium quality; such were the acclimatising effects of the country.

Potatoes are not largely grown; as compared to Prussia, Distilleries. there are but few distilleries. The German Empire produces 2,969,000 hectolitres of alcohol; of these, Prussia, 2,407,000, and Bavaria only 158,000 hectolitres. In Germany the quantity of spirit allowed to be distilled by the farmers is fixed at a certain figure for every distillery, known as "Kontingent" for "Kontin- this fixed quantity a certain tax is paid; if more is distilled a gent." a higher rate of excise is levied. The quantity fixed in Bavaria, as a whole, amounts to 3 litres per head of population.

In Bavaria there are 959 distilleries in which spirits are distilled from potatoes; the sum total of distilleries amounts to 5,261.

There are only two sugar factories.

The chief agricultural products are barley, wine, hops, and Chief cattle. Barley we have already referred to. Hops are grown very agricultural extensively, namely, 65,000 acres. In Mittelfranken the products: well-known "Spalter," in Upper and Lower Bavaria the Barley. "Hallertauer" hop is extensively cultivated. Hops. Wine. Cattle.

In Nürnberg and Bamberg are the great hop markets, and America and England are large buyers. The parishes have different trade marks for their hops, and they are sold and known to buyers under these marks.

58,000 acres of vines are grown in Bavaria on the sunny hill- Wine. sides of the Haardt Mountains in the Pfalz (Palatinate), and on the banks of the River Main in Unterfranken. The phylloxera Phylloxera. is so far unknown in Bavaria.

A favourable circumstance for Bavarian agriculture is that Size of farms. the land consists chiefly of small farms. Of the total area of Bavaria (11,410,000 acres):—25·5 per cent. form areas of farms of less than 2½ acres; 51·5 per cent. of 2½ to 25 acres; 19·3 per cent. of 25 to 250 acres; 0·1 per cent. of over 250 acres. There are only 100 large entailed estates with together 213,000 acres.

There are 403,961 independent farmers and 550,787 members Number of of their households working on the farms. There are farmers and altogether 353,132 farm servants on annual and 129,608 farm hands. hands on daily wages. In harvest-time extra hands have to be got from neighbouring countries. In hop-picking times whole trains full of extra hands come in.

Yearly wages range for men from 7*l.* 10*s.* to 10*l.* per annum Wages. with board and lodging (estimated at 15*l.*). Women's annual wages are from 5*l.* to 7*l.* 10*s.*, and board (estimated at 12*l.* 10*s.*) and lodging. Day wages vary considerably, from 1*s.* to 2*s.*

Land is not subdivided among the children of the family. Inheritance As a rule, one of the children inherits the whole farm at a fair of land. price during the life of the parents, when the latter reach their

"sixties"; the remaining children get "paid out," but retain the right of living in the house, if ill-luck meet them in life. There is nothing so great as the pride of the Bavarian peasant in his homestead.

Horses. Horses are raised extensively on the large estates; but the small peasants breed their own.

State studs. The State studs own 511 stallions. The latter are bred and raised on two large State farms. The large estates only breed high class saddle and carriage horses. The peasants breed farm horses of a heavy Belgian and Norman type.

The State influences horse-breeding considerably by giving yearly prizes and licenses to stallions for serving purposes. A few of the wealthier estate owners breed thoroughbreds; of the latter there are about a dozen studs. To encourage the raising of foals the State have farms for this purpose at a moderate fee for the small peasant, who has not sufficient pasture.

Cattle. Cattle raising is the most important branch of agriculture in Bavaria.

During the last 10 years the sum total of cattle has increased by 9·8 per cent., and now amounts to 3,333,953 head.

Large increase, and that due to three causes. In 1821 it amounted to 1,895,687 head. In 70 years we have an increase of close on 100 per cent.; this is due to three causes:—

1. Increase of meadows and pastures due to extensive drainage and irrigation.

2. Increase of clover and root acreage.

3. Increase of stall-feeding.

The various classes are bred for milk, meat, or draught purposes.

One of the most popular breeds of oxen for farm work, the "Scheinfelder," is bred in that country, and largely bought for carting heavy sugar-beet loads in Saxony by big farmers for a summer's work, and in winter for fattening on sugar-beet refuse and cake.

For milk the "Allgäuer" breed is highly esteemed.

State help. The State, the provinces, and societies spend per annum from 10,000*l.* to 15,000*l.* for the improvement of cattle.

Lectures gratis. The State supplies travelling instructors who, when called upon, lecture gratis to any society or community.

Annual licenses for bulls. The bulls have to have an annual license for serving cows, and legislation is very strict; no bull without a license being allowed to serve; the penalty is heavy and strictly enforced.

Co-operative dairies. Co-operative dairies as elsewhere in Germany have spread very rapidly. Large estates have steam dairies of their own, and generally buy the milk from the neighbouring smaller farmers. Where no large estate exists the smaller farmers have built co-operative dairies.

Cheese. Cheese is largely manufactured in "Allgäu." From 100 litres of milk, 8·46 to 9·30 kilos. are made. The Swiss is almost exclusively the class of cheese made, and some Camembert.

State instructors. Here, too, we find the State supplying the necessary instructors and lectures gratis.

A very useful institution in Bavaria is that known as the "Landescultur Rentenanstalt"; it is a State institution for the purpose of regulating river-courses, draining, irrigating and improving land generally. This institution lends the necessary funds at $3\frac{1}{2}$ per cent. Since it was founded in 1884, 2,026 farmers have got loans to the amount of 1,450,364 marks.

Interesting in Bavaria are the Hail Insurance Companies.

Hail insurance.
State control.

In 1884 a Hail Insurance Institution was founded under State supervision.

Advantages.

Its chief advantages are the following:—

1. Cheap management, the cost of which on an insurance amount of 108,780,000 marks only amounted to 21,756 marks, or $\frac{1}{4}$ d. per 5l.

2. The use of a State loan of 1,000,000 marks, the interest going to the reserve fund.

3. Yearly State subscription of 40,000 marks to help to cover insurances.

4. Freedom from postage and taxation disbursements.

Insurances are always paid out in full amount of the damage done.

In 1884 there were 7,375 farmers insured, in 1892 there were 72,414 farmers insured.

The amount insured increased during the same period from 11,140,233 to 108,780,240 marks. Small farmers participate in this institution as freely as the larger.

Amount insured.

The damage is valued by a commission of farmers, of which there are 170 available; these services are honorary.

The average premium paid for hail insurance varies from 1.16 to 1.28 per cent., according to the locality.

Premiums.

In nine years the institution has paid out 6,068,552 marks insurances, and has a reserve fund of 1,152,436 marks.

Reserve fund.

In a similar way there is the Fire Insurance Institution. It has a reserve fund of 10,000,000 marks. Since 1875 it has reduced its premiums by 27,000,000 marks, and has spent 3,830,021 marks on fire brigades. Both these hail and fire insurance institutions under State control have become a boon to the country generally, and a great mainstay to Bavaria's agriculturists.

Fire insurance.
State control.

As prices of agricultural products declined, farmers in Bavaria, as elsewhere in Germany, came to the conclusion that in co-operation lay their material salvation, and that co-operation must improve the farmers' position all round.

Co-operation became a necessity among Bavarians.

In Bavaria also there are to-day 2,371 agricultural co-operative societies numbering 173,016 members, among which there are numerous co-operative sale and purchase societies and credit banks.

The Agricultural Union in Bavaria numbers 70,000 members. The president is the Prince Regent of Bavaria. It was founded in 1810, every district and province has a sub-union of its own, and every community has a further sub-union, each with its own committee. All are managed by the Central Union, with a

The Agricultural Union.

central general committee elected by members out of the province and district unions.

The object of the union is to protect and promote agricultural interests, and the central general committee make suggestions and give advice to the Ministry as to alterations in legislation in agricultural matters, or any great necessary improvement to the country with regard to arterial drainage, irrigation, &c.

Members pay a subscription of 3s. per annum.

In this way all farmers are practically in touch with the Ministry, and all suggestions from any member get due consideration.

Conclusion.

Conclusion.

England's superior natural advantages in agriculture. England able to produce the best all-round good crops and high-class stock.

As a matter of comparison, not only between the British Isles and Germany but with any country in the world, there is no doubt whatever that the former possesses by far the greater natural advantages for agricultural production, i.e., as regards geographical position, soil, and even climate. There may exist certain parts of countries where a larger produce of certain crops per acre is attained, and there are climates perhaps more favourable to certain crops, but in no other country than England do we find a more favourable combination of climate and soil for the various green crops, wheat, roots, hops, fruit, pasture, and all the finest breeds of horses, cattle, pigs, and sheep.

Comparison with other countries.

Next comes, perhaps, New Zealand with the finest climate and soil for agricultural production; her pasture is equally good, but the live-stock lacks constitution, stamina, and the crops have not the quality of the English ones.

In Manitoba and the North-West of Canada, and in certain parts of Russia and the United States of America, we find great tracts of fruitful virgin soils, but in these parts the climate in certain seasons of the year is less favourable to plant and animal life, and therefore their normal development is retarded.

If Canada were cultivated as highly as England, possibly it might bear as big crops, if there were not, in parts, an almost arctic winter, and the early autumn frosts which so often ruin a crop altogether. Clover, e.g., cannot be grown in Manitoba, which is partly the case with roots, and only very hardy fruit varieties can grow.

In Australia, India, and Argentina, where the climate is hotter than in England, there exist great tracts of very fruitful land, but droughts and insect plagues prevent crops reaching perfection.

Holland is the only country which compares favourably with England as regards heavy wheat crops and quality of pasture, but there is the hot and over-dry summer and long severe winter to be contended with, so trying to the crops, cattle, and sheep. Even in the Danubian principalities where the soil is most fruitful and rich, there is always a certain part of the year which is unfavourable to the perfect development of a crop.

The British farmer who is so highly favoured by nature has the great disadvantage of having to fight the whole agricultural world in his own home markets, and there are countries which, owing to a number of reasons, are enabled to produce and send to market cheaper wheat, meat, wool, and fruit than he can; countries, for instance, with virgin soils at low rates of land purchase, or rents, less cost of labour, and low railway and ocean freights, and more favourable treatment on English railways. Such keen competition is certainly not felt in any other country than Great Britain and Ireland.

The British farmer is burdened with higher rents and taxes than his colonial brothers and foreign competitors, and is handicapped by preferential railway rates. On the other hand, no continental farmer can buy such cheap mineral manure, cakes and meals as the British. The Germans have to pay, for instance, far more for basic slag, nitrate of soda, or phosphates, more for cakes and colonial meals for their stock; and the majority of them have to pay more freight on account of the greater distance of inland transport. The British farmer has the advantage of being the best breeder and judge of live-stock in the world, and of that practical knowledge of his work acquired through generations of experience, though wanting in business capabilities and scientific knowledge. Whereas, the latter qualities I am perfectly certain have been of the greatest advantage to the German farmer.

In cattle raising, the United States of America have the advantage of cheap pasture, but the disadvantage of winters which but too often sweep away thousands of head; for the latter reason this branch of farming in Argentina is easier and safer than in the United States.

In Australia, droughts often kill hundreds of flocks as quickly as the snow and frost does on the plains of North America, and hence it will be obvious that America can never attain the quality of British meat.

In sheep raising, the only countries that can compete in the English markets with any success are New Zealand, Australia, and, perhaps, Argentina. In the latter country, on account of the moist nature of the soil, the sheep are very liable to disease. New Zealand and Tasmania are the finest countries for raising sheep. The United States of America do not compete with the British farmer in mutton, to any extent.

I have tried to show that the British farmer has nothing to fear as regards cattle raising from foreign competitors, as the British quality always is his safeguard, and he gets the top prices for these products.

But if we consider the dairy, poultry, and eggs, we find the English market flooded by foreign products. The United States of America and Canada are the greatest competitors in cheese. Canada's supply has increased year by year.

In butter, Denmark, Sweden, Normandy, and Germany are the chief competitors in the English market, and this in the face

British markets open to the whole world.
Foreign advantages of cheap production.

Disadvantages and advantages in British agriculture.

Lack of business ways and scientific knowledge of British farmers.
Cattle-raising. Disadvantages of United States of America and Argentina.

Superiority of British beef.

Sheep-raising. Advantages in New Zealand and Tasmania.

Foreign dairy produce, poultry, and eggs.
Cheese.
Butter.

Success of
foreign
competitors,
and by what
means?

of the fact that these countries have not by any means the natural advantages of soil and climate in this respect, which the Englishman has; still, these countries have beaten the British farmer out of his own home market. And by what means? simply by working on thoroughly business systematic lines, based on scientific and technical knowledge of the dairy, and making most of the advantages of thorough organisation and co-operation, both in production and sale of produce, again assisted by English ship and railway owners.

New Zealand and Australian butter will, before long, join the above countries in their competition. Independence being one of the grandest attributes of the British race, it is left to the British farmer, in self-defence and in preservation of his and his family's interests, to make a programme and live up to it, on similar lines to those of his many competitors. I am perfectly convinced that, if he takes the butter business in hand with the same energy and knowledge as the German, within a few years' time the home-made article must predominate, and eventually exclude all first, second, and third rate foreign butter. What appears to be most wanted is organisation, co-operation, and united action against these competitors, and against the British carriers and middlemen. Nowadays the farmer must be a merchant to succeed.

Dairying has become a science in itself, and anyone who has travelled in Denmark or Sweden will agree with me, that the dairies as run there have been the product of years of hard work in acquiring scientific and technical knowledge. The success is not merely the outcome of time, but of an iron will on the part of the farmers in co-operation, at any cost of energy and sacrifice. German, Danish, and Swedish dairies are run on a thoroughly businesslike basis, in production and sale, constantly under the control and help of science and bacteriology. German dairy schools and model dairies rank to-day with similar Danish and Swedish institutions, and the German State is doing all in its power to promote the welfare of its farmers, who are a united class determined to make their voice heard.

Germany's
technical
education.

Germany, taken all round, does a great deal for technical education in all its various branches, and there is no doubt that the capital the empire has invested therein is well spent.

Agricultural
university
colleges.

One of Germany's very wise steps for the furtherance of agricultural science, and, be it said, for the good of the whole of agricultural Germany, was the founding of agricultural university colleges at the old German universities; Berlin, Breslau, Giessen, Göttingen, Halle a/S., Jena, Kiel, Königsberg, Leipzig, Munich, and Bonn Universities all have university colleges attached to them, with a large staff of agricultural professors to lecture on all the various branches of that science in theory and practice. Such universities, *e.g.*, as Heidelberg, Tübingen, which have not such colleges, have invariably a chair of agriculture, and one or more professors who lecture on the subject.

Thorough
education

It may confidently be stated that Germany's success in so very many branches of industry, especially in chemistry, and its

bearing on all branches of manufacture, is mainly due to a thorough training and high-class teaching. proved a success in Germany.

Agriculture is no longer the easy-going occupation it used to be in the time of our forefathers, it has become a very difficult task for the farmer to keep afloat, and come out well in the battle of life.

The best foundation a State can give to its people is a thorough genuine and technical education, to fit them out adequately in order to be able to successfully fight their way; it affords them the best chance of being able to work against long odds, so that they may hold their own in bad times, and even through a crisis.

The German farmer has had to fight against agricultural depression, but, by means of his thorough education and resources, backed up by science and State help, he has withstood bad seasons and low prices; he has been going ahead all the time, learning how to increase his crops, and increase his income per acre in the same proportion as prices receded; with this object in view no stone was left unturned, and his resources were strained to the utmost; he found great help in co-operation, as I have tried to show. The German farmer's struggle against depression. Co-operation a great boon and means of self-preservation.

A great help was the "Moordammcultuur" system of cultivating moors, of which I have spoken and described in detail. Science in all branches of agriculture came to his rescue, and helped him to fight successfully against the dishonesty of dealers in cake, meal, seed, mineral manures; it was science that taught him with what to feed his stock, so as to produce milk, meat, or muscle, and it was science that taught him how to feed his plants, and what quantities of nitrogen phosphates and potash a crop needs, and which must be replaced. Science to the rescue.

In all his struggles the State helped him, by encouraging scientific research at its experiment stations by gratis advice, and farmers recognised the value of unions and combined efforts to fight and swim up stream. He recognised that, single-handed, he was powerless to achieve anything, but, although not individually intrinsically wealthier when combined, he found himself, when united, and working hand in hand co-operatively, strong enough and able to withstand worse times than before. State help. Union combination preservation.

Co-operation is the German farmer's stronghold and bulwark, and he means to stand by it.

Table 2.—TOTAL Amounts Harvested in the Year 1895, and 1885-94.

Year.	Amounts in Tons of 1,000 Kilos.						
	Rye.	Wheat.	Spelt.	Barley.	Potatoes.	Oats.	Hay.
1895—							
Prussia ..	4,901,670	1,672,365	15,541	1,253,000	21,731,513	3,333,632	8,559,394
Bavaria ..	620,145	399,844	105,745	467,921	3,181,520	574,584	6,767,085
German Empire ..	6,595,758	2,807,557	374,575	2,411,781	31,786,621	5,262,690	21,001,621
1894 ..	7,075,020	3,013,271	426,639	2,432,913	29,049,238	5,250,152	18,970,259
1893 ..	7,460,383	2,994,823	423,152	1,946,944	32,277,851	3,242,313	11,490,787
1892 ..	6,827,713	3,162,865	497,818	2,420,736	27,068,567	4,743,086	16,554,291
1891 ..	4,782,904	2,333,757	373,082	3,517,374	18,558,379	5,273,340	18,715,112
1890 ..	5,868,078	2,830,921	492,970	2,283,432	23,320,983	4,913,544	18,859,888
1889 ..	5,363,426	2,372,413	299,918	1,938,419	26,603,965	4,197,134	18,423,290
1888 ..	5,522,740	2,530,842	336,017	2,260,590	21,910,996	4,647,533	15,469,981
1887 ..	6,375,734	2,830,804	457,079	2,205,504	25,272,998	4,301,407	15,362,238
1886 ..	6,092,949	2,666,423	441,440	2,337,206	25,143,229	4,365,894	17,903,338
1885 ..	5,842,558	2,608,019	466,447	2,264,829	23,016,592	4,358,039	15,912,590

Table 3.—AMOUNTS Harvested per Hectare in 1895 and 1885-94.

States.		Per Hectare in "Doppelpentner" = 100 Kilos.													
		Rye.		Wheat.		Spelt.		Barley.		Potatoes.		Oats.		Hay.	
		1885-94.	1895.	1885-94.	1895.	1885-94.	1895.	1885-94.	1895.	1885-94.	1895.	1885-94.	1895.	1885-94.	1895.
Prussia...	...	9.6	10.9	13.6	14.9	9.6	9.7	12.0	14.0	80.7	104.6	10.8	12.6	20.3	23.2
Bavaria...	...	12.9	11.3	13.6	12.5	13.4	13.3	14.2	13.2	102.0	99.9	12.6	12.6	43.1	52.7
German Empire	...	10.5	11.2	14.0	14.5	11.7	11.0	13.3	14.3	97.8	104.2	11.7	13.0	23.6	35.5
1894	...	11.7		15.2		12.3		14.9		95.0		13.4		32.1	
1893	...	12.4		14.7		12.1		12.0		106.3		8.3		19.4	
1892	...	12.0		16.0		13.8		14.3		95.5		11.9		23.1	
1891	...	8.7		12.4		11.4		13.9		63.5		12.7		31.7	
1890	...	10.1		14.4		13.4		13.7		60.3		12.6		31.9	
1889	...	9.2		12.1		8.2		11.5		91.2		10.8		31.2	
1888	...	9.5		13.1		9.2		13.1		75.0		12.1		26.2	
1887	...	10.9		14.7		12.3		12.9		86.6		11.3		27.7	
1886	...	10.4		13.9		11.8		13.5		86.2		12.8		30.3	
1885	...	10.0		13.6		12.5		13.0		95.9		11.5		26.9	

Table 4.—NUMBER of Livestock Registered.

States.	Horses.		Cattle.		Sheep.	Pigs.	Goats.
	Total.	Three Years Old and above.	Total.	Two Years Old and above.			
On December 1, 1892—							
Prussia	2,653,644	2,253,468	9,871,381	6,476,307	10,109,544	7,725,447	1,963,909
Bavaria	369,085	311,181	3,337,978	2,210,940	968,414	1,858,744	268,471
German Empire ..	3,336,256	3,290,104	17,555,694	11,510,053	18,589,612	12,174,288	3,091,287
Compared to—							
January 10, 1863 ..	3,522,545	2,963,109	15,786,764	10,717,532	19,189,715	9,206,195	2,640,994
January 10, 1878 ..	3,852,281	..	15,776,702	..	24,999,406	7,124,088	2,320,002
• In the "sixties" ..	3,193,700	..	14,999,200	..	28,016,830	6,462,600	1,818,400

Table 5.—NUMBER of Distilleries at Work.

Year beginning October 1—	Distilling Chiefly—							Number of Distilleries, Sum Total.
	Potatoes.		Corn.		Other Raw Products.	Molasse.	Other Non-Starchy Substances.	
	Agricultural.	Non-Agricultural.	Agricultural.	Non-Agricultural.				
1887-88	6,256	12	4,431	953	..	19	36,744	48,415
1888-89	5,137	8	3,866	991	..	18	55,642	65,552
1889-90	6,611	15	4,139	916	..	18	37,431	49,180
1890-91	6,364	24	5,075	903	..	26	45,374	57,766
1891-92	5,804	14	4,802	875	..	39	48,255	59,789
1892-93	6,280	40	5,450	893	..	27	47,886	60,025
1893-94	5,774	16	5,772	870	..	27	59,044	71,503
1894-95	5,611	20	6,642	907	..	30	52,167	65,377
1895-96	5,615	68	6,654	1,075	219	29	47,103	60,763
1895-96—								
Prussia	2,847	6	1,458	747	..	16	1,305	6,379
Bavaria	1,063	..	898	15	..	..	4,167	6,133
Saxony	548	..	13	10	..	1	9	581
Württemberg	636	46	2,051	206	156	2	3,383	6,430
Baden	172	16	2,122	43	63	4	16,690	19,110
Elsass and Lothringen	37	..	33	3	..	..	21,427	21,500
Remaining districts	323	..	79	51	..	6	122	580

Table 6.—PRODUCTION and “Kontingent” of Distilleries.

Year beginning October 1—	Distilling Chiefly—							Kontingent of Distilleries.
	Potatoes.		Corn.		Other Substances.	Melasse.	Other Non-Starchy Substances.	
	Agricultural.	Non-Agricultural.	Agricultural.	Non-Agricultural.				
Hectolitres pure Alcohol.								
1887-88	2,526,481	8,227	156,945	270,442	..	75,002	20,928	1,935,537
1888-89	2,076,366	4,611	169,348	362,978	..	77,010	36,753	1,990,257
1889-90	2,517,308	14,402	163,159	346,461	..	84,156	19,316	1,977,032
1890-91	2,225,093	8,043	171,686	339,541	..	201,285	28,551	1,923,441
1891-92	2,119,547	5,376	202,401	332,993	..	260,243	27,679	2,134,437
1892-93	2,368,090	8,373	176,871	341,986	..	105,955	27,645	2,031,877
1893-94	2,578,949	4,591	185,000	347,443	..	96,378	50,326	2,145,040
1894-95	2,168,353	4,195	186,850	337,113	..	218,473	36,688	2,188,762
1895-96	2,650,397	4,926	202,623	323,960	354	122,395	26,103	2,170,919
1895-96—								
Prussia	2,280,859	4,298	149,436	227,746	..	78,515	4,584	1,690,345
Bavaria	115,593	..	29,227	22,692	..	..	6,451	162,683
Saxony	148,916	..	576	10,396	..	146	843	110,126
Württemberg	3,368	156	8,617	7,470	218	9,904	1,637	42,674
Baden	4,198	473	3,110	86,048	136	11,518	4,089	46,583
Elsass and Lothringen	1,740	..	464	53	..	..	8,391	4,132
Remaining districts	95,723	..	11,198	22,656	..	22,202	653	115,379

Table 7.—Raw Stuff.—Quantity Distilled.

Year.	Distilled Substances.								
	Potatoes.	Corn and Starchy Substances.	Melasse Beet and Beet Sap.	Brewers' Refuse.	Kernel Fruit and Tresters.	Stone Fruit and Tresters.	Cider and Wine.	Wine and Vine-Tresters.	Other Substances.
	Tons.	Tons.	Tons.	Hectolitres.	Hectolitres.	Hectolitres.	Hectolitres.	Hectolitres.	Hectolitres.
1887-88	2,009,416	804,980	27,720	299,086	28,592	83,897	3,936	381,081	17,080
1888-89	1,698,951	329,491	25,487	279,234	236,476	320,614	9,503	477,614	31,756
1889-90	2,088,515	331,623	28,039	232,677	28,765	128,789	8,227	270,871	15,360
1890-91	1,685,867	350,048	73,541	237,564	86,890	131,310	9,081	408,814	50,405
1891-92	1,334,602	491,050	95,370	252,971	59,484	306,031	11,907	195,035	1,554
1892-93	1,947,411	322,549	37,461	224,855	64,006	252,900	20,853	270,152	67,495
1893-94	2,148,014	324,529	33,826	188,238	271,774	602,789	27,911	538,314	886
1894-95	1,804,250	322,340	76,459	179,765	130,248	421,821	25,484	366,314	60,490
1895-96	2,210,370	330,694	43,066	182,737	120,064	227,114	30,424	244,756	9,835
									84,988
									82,571
									7,852
									48,230
									9,110

Table 8.—BEER production in the German Empire, exclusive of Bavaria, Württemberg, Baden, Elsass-Lothringen.

Year.	Number of Breweries.	Non- Agricultural (Breweries).	Amount of Taxable Raw Substance.		Amount of Beer Brewed.		Average Amount of Sub- stance used to produce 1 Hectolitre of Beer.	
			Corn.	Surrogate.	Total, 1,000 Hectolitres.	Per Head of Population.	Corn.	Surrogate.
			Tons.	Tons.			Kilograms.	Kilograms.
1876	12,535	10,399	423,886	8,313	20,878	64	20·35	0·12
1877-78	12,186	10,281	416,719	2,696	20,860	63	20·45	0·10
1878-79	11,867	10,117	416,690	2,170	20,372	61	20·43	0·09
1879-80	11,647	10,460	407,448	1,817	19,985	60	20·40	0·08
1880-81	11,564	10,874	430,794	2,139	21,136	63	20·40	0·09
1881-82	11,266	10,068	430,100	2,283	21,316	63	20·19	0·09
1882-83	10,921	9,797	446,928	2,261	23,113	64	20·23	0·09
1883-84	10,708	9,625	472,573	2,466	23,392	67	20·23	0·08
1884-85	10,520	9,461	498,281	2,843	24,613	70	20·07	0·09
1885-86	10,365	9,326	487,501	3,045	24,291	68	20·09	0·10
1886-87	9,708	8,680	532,964	3,635	26,566	74	20·09	0·11
1887-88	9,639	8,606	556,390	4,331	27,476	76	20·07	0·13
1888-89	9,556	8,540	573,350	4,953	28,656	77	20·05	0·13
1889-90	9,275	8,352	632,641	7,117	32,189	85	19·73	0·16
1890-91	8,968	8,064	630,624	9,365	32,279	84	19·64	0·19
1891-92	8,873	7,785	630,751	8,764	32,632	84	19·47	0·14
1892-93	8,480	7,571	633,077	8,716	33,171	84	19·24	0·11
1893-94	8,243	7,406	663,379	9,154	34,886	86	19·15	0·12
1894-95	8,029	7,225	643,564	10,909	33,974	84	19·15	0·13
1895-96	7,847	7,068	702,927	11,938	37,733	93	18·83	0·12

BEER production in the German Empire, exclusive of Bavaria, Württemberg, Baden, Elsass-Lothringen--continued.

State.	Number of Breweries.	Non-Agricultural (Breweries).	Amount of Taxable Raw Substance.		Amount of Beer Brewed.		Average Amount of Substance used to produce 1 Hectolitre of Beer.	
			Corn.	Surrogate.	Total, 1,000 Hectolitres.	Per Head of Population.	Corn.	Surrogate.
			Tons.	Tons.		Litres.	Kilograms.	Kilograms.
1895-96--								
Prussia..	5,598	5,068	512,101	9,699	27,089	85	19.17	0.12
Saxony..	696	696	70,577	469	4,468	118	15.81	0.09
Hesse ..	173	173	25,339	243	1,166	113	21.94	0.10
Mecklenberg	344	98	7,233	354	475	68	15.83	0.14
Thüringen	762	761	47,270	73	2,867	161	19.98	0.08
Oldenburg ..	69	68	3,431	77	185	63	18.94	0.08
Brunswick ..	69	69	10,146	114	550	137	18.61	0.08
Anhalt ..	70	70	7,987	115	421	144	18.99	0.23
Lübeck ..	24	23	2,169	18	110	126	19.67	0.16
Bremen..	16	16	4,951	373	278	143	19.29	0.43
Hamburg ..	26	26	11,723	408	674	101	17.73	0.29

Table 9.—BEER Production, German States.

Year.	Beer Production of the Various States.				Production per Head of Population.			
	Bavaria.	Württemberg.	Baden.	Elsass and Lothringen.	Bavaria.	Württemberg.	Baden.	Elsass and Lothringen.
	1,000 hectolitres.	1,000 hectolitres.	1,000 hectolitres.	1,000 hectolitres.	Litres.	Litres.	Litres.	Litres.
1876	12,347	3,879	1,051	707	280	204	69	46
1877-78	12,205	3,802	1,096	803	274	198	72	53
1878-79	12,123	3,067	1,085	788	250	211	70	52
1879-80	12,153	3,178	1,086	789	232	163	70	52
1880-81	11,527	3,396	1,156	983	224	173	74	53
1881-82	12,343	3,248	1,139	941	232	164	76	60
1882-83	12,113	3,042	1,167	816	227	154	74	52
1883-84	12,265	3,084	1,221	823	229	155	77	53
1884-85	12,609	3,028	1,236	802	234	152	78	51
1885-86	12,666	2,879	1,245	691	234	144	78	44
1886-87	13,096	3,306	1,302	719	250	165	81	46
1887-88	13,705	3,558	1,485	778	240	176	92	50
1888-89	13,526	3,154	1,509	759	245	156	98	48
1889-90	14,284	3,419	1,691	798	268	168	100	51
1890-91	14,427	3,508	1,679	837	263	173	102	52
1891-92	14,490	3,454	1,643	875	258	169	99	54
1892-93	15,104	3,750	1,714	912	267	183	102	56
1893-94	15,025	3,478	1,710	907	264	169	102	56
1894-95	15,186	3,493	1,728	869	265	169	101	53
1895-96	16,084	3,885	1,914	997	277	187	111	61

Table 10.—PRODUCTION of Beetroots for the Manufacture of Sugar, German Empire.

Year.	Number of Sugar-Beet Factories.	Amount of Beetroot Handled.	Amount of Beetroots Produced by Factories.	The Latter Produced on Hectares.	Hence Amount Produced per Hectare.	Amount Produced.		Amount of Beetroots Handled and Turned into Sugar per 12 Hours' Work.
						Raw Sugar of all Products.	Melasse.	
		Tons.	Tons.	Hectares.	Tons.	Tons.	Tons.	Tons.
1876-77	..	3,550,037	2,490,154	98,725	25.2	289,423	111,101	50
1877-78	..	4,080,968	2,872,775	104,788	27.4	378,009	122,813	54
1878-79	..	4,628,743	3,114,030	107,679	28.9	426,155	133,652	61
1879-80	..	4,805,263	2,830,586	113,003	25.2	409,415	131,871	63
1880-81	..	6,322,203	3,871,679	118,431	32.7	555,915	161,984	77
1881-82	..	6,271,948	3,431,754	121,256	28.3	599,722	150,813	82
1882-83	..	8,747,154	4,443,632	129,262	34.4	831,995	196,305	92
1883-84	..	8,918,130	4,205,084	140,843	29.9	940,109	207,978	99
1884-85	..	10,402,688	4,936,246	150,077	32.9	1,123,030	269,700	107
1885-86	..	7,070,317	4,193,047	138,869	30.2	808,105	180,178	108
1886-87	..	8,306,671	4,436,084	147,782	30.0	985,628	215,887	114
1887-88	..	6,963,961	3,797,652	143,853	26.4	910,698	183,037	116
1888-89	..	7,896,183	4,208,942	149,411	28.2	944,506	201,189	118
1889-90	..	9,822,635	5,093,032	155,014	32.9	1,213,889	240,797	129
1890-91	..	10,623,319	6,117,674	166,998	32.2	1,284,485	263,094	134
1891-92	..	9,488,002	4,644,114	164,774	28.2	1,144,368	244,969	145
1892-93	..	9,811,940	4,814,575	171,653	27.9	1,171,843	241,805	157
1893-94	..	10,644,363	4,861,428	177,616	27.6	1,316,865	279,239	168
1894-95	..	14,521,030	6,047,041	173,931	32.9	1,766,806	347,080	181
1895-96	..	11,672,816	5,129,146	167,201	31.0	1,537,522	328,463	197

PRODUCTION of Beetroots for the Manufacture of Sugar, German Empire—continued.

State.	Number of Sugar-Beet Factories.	Amount of Beetroot Handled.	Amount of Roots Produced by Factories.	The Latier Produced on Hectares.	Hence Amount Produced per Hectare.	Amount Produced.		Amount of Roots Handled and Turned into Sugar per 12 Hours' Work.
						Raw Sugar of all Products.	Melasse.	
		Tons.	Tons.	Hectares.	Tons.	Tons.	Tons.	Tons.
1895-96—								
Prussia ..	307	9,231,276	3,907,604	125,553	30.9	1,212,578	255,696	200
Bararia ..	2	40,255	..	..	23.7	5,297	1,564	229
Saxony ..	4	184,609	64,129	2,726	25.4	19,361	8,311	228
Württemberg ..	4	83,625	22,610	861	25.4	10,944	4,124	156
Raden and Elsass ..								
Lothringen ..	2	42,858	11,168	415	25.1	12,490	4,046	187
Hesse ..	4	95,718	60,030	2,250	25.5	12,683	1,913	194
Mecklenburg ..	10	516,283	353,027	11,467	31.3	66,213	11,284	290
Thüringen ..	5	116,390	69,059	2,234	29.2	16,681	4,131	175
Brunswick ..	32	887,407	393,520	10,655	37.9	111,479	27,086	179
Anhalt ..	27	524,395	307,929	11,040	28.1	69,606	15,338	135

Table 12.—PRICES of Agricultural Produce, December 8, 1897.

	Per 1,000 Kilograms.	
	From—	To—
	Marks.	Marks.
Berlin :—		
Wheat—		
Loco	181	190 50
American quotation	169	173
Russian "	155	175
Rye—		
Loco	141	153 50
Danube	112	121
Russian	112	121
Feeding barley—		
Loco	128	150
Oats—		
Loco	141	165 75
American quotation	110	115
Maize—		
Loco	95	100 25
American quotation	77	80
Hamburg :—		
Wheat	180	190
Rye	140	152
Russian loco	..	109
Maize	..	99

**REPORT of Prices of German Grown Corn as Quoted by the
Prussian Chamber of Agriculture. December 9, 1897.**

	Per Ton.			
	Wheat.	Rye.	Barley.	Oats.
	Marks.	Marks.	Marks.	Marks.
Uckermark	170 to 182	134 to 135	138 to 156	135
Mittel-Friegnitz	170 180	132 135	140 150	135 to 145
Neumark	180	132 145	160	140
Lausitz	170 to 184	148	145 to 155	150
Magdeburg	174 185	142 to 144	175 205	148 to 160
Altmark	175 185	137 141	160 168	140 153
Merseburg-Oestl.	178 190	137 148	170 180	148 157
" west d. Mulde	180 195	140 154	185 210	140 160
Erfurt	180 182	142 160	185 195	140 148
Stolp	185 192	124 133	128 149	130 144
Neustettin	182 185	127 133	137	130 136
Nangard	180	130 132½	128½	134
Stettin	176 to 183	130 138	140 to 159	120 to 140
Anklam	176	133 142	135 140	124 135
Stralsund	173 to 183	131 134	...	142
Danzig	177 194	137 138	140 to 142	136
Königsberg (Prussia)	188	130 137	132	...
Allenstein	180 to 184	131½	...	...
Breslau	191	150	157	138
Görlitz	180 to 195	130 to 146½	140 to 148½	140 to 148
Lauben	...	134	140 142	136 110
Lehnau	179 to 190	134 to 138	140 153	126 132
Hirschberg	170 193	142 155	138 157	126 132
Bromberg	175 178	134 138	120 146	130 143
Krotoschin	185 187	143 146	145	130 135
Kiel	182	142	138	145
Flön	182	135	130	135
Hadersleben	175 to 180	135 to 140	125 to 135	125 to 130
Kassel	190	160	...	150
Average weight of a litre ...	Grammes. 755	Grammes. 712	Grammes. 573	Grammes. 450
Private quotations:—	Marks.	Marks.	Marks.	Marks.
Königsberg (Prussia)	186	136	...	...
Berlin	191	140½	...	151

WORLD'S Market Price, by Private Wire.

				Price per Ton, inclusive of Freight, Duty, and Expenses, to Berlin and Cologne.		
				December 9, 1897.		December 8, 1897.
				Cents.	Marks.	Marks.
Wheat—						
From New York to Berlin ..	..			97½	209 50	208 00
Chicago	..			100½	221 75	218 65
				s. d.		
Liverpool	..			7 4½	211 35	211 00
				Copecks.		
Odessa	..			111	205 75	205 75
Riga	..			120	211 75	211 75
Rye—						
From Odessa to Berlin ..	..			70	151 30	151 30
Riga	..			76	153 30	153 30
Wheat—				Austrian florins.		
In Buda-Pesth	..			11 97	203 50	..
From Amsterdam to Cologne ..	..			..	..	..
Rye—				Dutch florins.		
From Amsterdam to Cologne ..	..			132	148 75	..

PRICES at Breslau. December 8, 1897.

					Per 100 Kilograms.	
					From—	To—
					Marks.	Marks.
Wheat	..				13 70	18 80
Rye	..				13 00	15 00
Barley	..				12 20	15 70
Oats	..				11 80	13 80
Maize	..				11 50	12 00

PRICES at Dantzig. December 8, 1897.

					Per Ton of 1,000 Kilograms.	
					From—	To—
					Marks.	Marks.
Wheat	..	..	..	..	125	192
Rye—						
Inland.. .. .	..	..	..	..	135	136
Russian-Polish	..	..	..	..	..	101
Barley	..	..	..	..	120	140
Oats	..	..	..	..	..	134
Peas	..	..	..	..	..	140
Rape	..	..	..	..	..	240

PRICES at Graudenz. December 8, 1897.

					Per Ton of 1,000 Kilograms.	
					From—	To—
					Marks.	Marks.
Wheat	..	..	..	..	160	185
Rye	..	..	..	..	130	142
Barley—						
Feeding	..	..	..	..	114	123
Brewing	..	..	..	..	124	150
Oats	..	..	..	..	126	145

HAY and Straw. Prices on December 9, 1897.

					Prices.	
					From—	To—
					Marks.	Marks.
Berlin—						
Hay	..	..	..	Per 100 kilos.	4·20	6·50
Straw	..	..	..	" "	3·82	4·40
Breslau—						
Hay	..	..	..	Per 50 kilos...	2·50	3·00
Magdeburg—						
Hay	..	..	..	Per 100 kilos.	6·00	7·50
Straw	..	..	..	" "	2·50	5·00
Halle o/Seale—						
Rye straw	..	..	..	Per 50 kilos...	1·50	2·00
Wheat straw	..	..	..	" "	..	1·20
Meadow hay (grass), 1	..	..	..	" "	3·00	3·25
" " 2	..	..	..	" "	..	2·50
Clover hay	..	..	..	" "	2·50	3·00
Nordhausen—						
Hay	..	..	..	Per 100 kilos.	5·00	5·50
Straw	..	..	..	" "	3·00	3·50

POTATOES. Prices on December 9, 1897.

		Prices.	
		From—	To—
		Marks.	Marks.
Berlin	Per 100 kilos.	5.00	6.50
Breslau	Per 50 kilos..	1.75	2.25
Magdeburg	Per 100 kilos.	4.50	5.00
Oschatz	Per 50 kilos...	2.50	3.00

SEEDS.

		Prices.	
		From—	To—
		Marks.	Marks.
Breslau—			
Lucerne (Provence)..	Per 50 kilos...	60	66
Clover—			
Red	" " "	40	50
White	" " "	35	52
Swedish	" " "	45	58
Yellow	" " "	12	18
Rye-grass—			
English	" " "	15	17
Silesian	" " "	9	12
Italian	" " "	14	18
Timothy	" " "	16	24
Mustard	" " "	11	15
Sand vetch	" " "	12	16
Seradella	" " "	9	12
Lupins—			
Yellow	Per 100 kilos.	10	12
Blue	" "	10	12
Vetches	" "	13	15
Peas (Victoria)	" "	17	12.50

CHEESE. Prices on December 7, 1897.

		Per 50 Kilograms.	
		From—	To—
		Marks.	Marks.
Berlin—			
Swiss Emmenthaler, summer, 1 A.		85	90
Bavarian Emmenthaler, winter ..		55	60

EGGS.

				Per 60.	
				From—	To—
				Marks.	Marks.
Berlin—					
Average size	..	..	..	3.40	3.80
Under average	..	..	..	2.65	2.70

CAKES. Prices on December 9, 1897.

				Per 1,000 Kilograms.	
				From—	To—
				Marks.	Marks.
Hamburg—					
American cotton-seed cake	..	..	..	108	117
Sesame cake	..	..	..	118	124
Rape	..	..	..	112	117
Palm kernel cake	..	..	..	112	117
Linseed cake	..	..	..	133	138
Maize cake	..	..	..	114	119
Cocoanut cake	..	..	..	117	132

PRICE of Meat at Berlin. December 8, 1897 (slaughterhouse prices).

				Per 100 Lbs. of Meat.	
				From—	To—
				Marks.	Marks.
For sale, 415 head of cattle, 1,377 calves, 838 sheep, and 9,074 pigs					
Bulls—					
3rd quality	..	..	..	43	50
Heifers—					
4th quality	..	..	..	46	49
Cows—					
5th quality	..	..	..	42	44
Calves—					
1st quality	..	..	..	70	74
2nd "	..	..	..	62	68
3rd "	..	..	..	54	60
4th "	..	..	..	40	42
Pigs (up to 15 months old)—					
1st quality	..	..	..	..	59
2nd "	..	..	..	..	..
3rd "	..	..	..	56	58
4th "	..	..	..	53	55
5th "	..	..	..	52	56

20% tare.

PRICES at Hamburg. December 7, 1897.

				Per 100 Lbs. of Meat.	
				From—	To—
				Marks.	Marks.
For sale, 1,117 calves—					
Extra quality	..	..	..	88	93
1st quality	..	..	..	77	83
2nd "	..	..	..	70	75
3rd "	..	..	..	62	67
4th "	..	..	..	50	57
Pigs*—				20% tare.	
1st quality	..	..	..	58	60.50

* Prices on December 8, 1897.

PRICES at Breslau. December 8, 1897.

				Per 50 Kilograms.			
				Live Weight.		Dead Weight.	
				From—	To—	From—	To—
				Marks.	Marks.	Marks.	Marks.
For sale, 828 head of cattle, 1,004 pigs, 607 calves, and 177 sheep							
Steers—							
1st quality	..	..	..	32	33	60	62
2nd "	..	..	..	..	27	..	52
Cows—							
1st quality	..	..	..	24	25	48	50
2nd "	..	..	..	18	20	35	38
Heifers—							
1st quality	..	..	..	27	29	54	57
2nd "	..	..	..	..	24	..	46
Bulls—							
1st quality	..	..	..	27	28	54	56
2nd "	..	..	..	..	22	44	48
Pigs—							
1st quality	..	..	..	48	50	53	60
2nd "	..	..	..	40	42	50	53
3rd "	..	..	..	..	38	48	50
Calves	..	..	..	32	35	..	..
Sheep—							
English	..	..	..	..	26	..	52
Inland	..	..	..	..	20	..	40

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DIPLOMATIC AND CONSULAR REPORTS.

GERMANY.

REPORT ON THE COAL INDUSTRY OF THE RHENISH WESTPHALIAN PROVINCES.

*Presented to both Houses of Parliament by Command of Her Majesty,
APRIL, 1898.*

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Report on the Coal Industry of the Rhenish Westphalian Provinces

By MR. T. R. MULVANY, H.B.M.'s Consul at Düsseldorf.

(Received at Foreign Office, March 5, 1898.)

It is to the great wealth in coal that the Rhenish Westphalian Provinces owe their industrial success. It was in this branch at the close of the unusually long period of depression that the first improvement was visible. Influence of coal on general trade.

In the general trade of the empire the record of prices in the coal branch is the guiding barometer which now stands high. In 1889-91 it went up quicker than the state of the iron and steel trade warranted, and the consequence was a sudden reaction which proved, however, not to be a very serious one, thanks to the fusion of a number of collieries into the three great leading coal companies of the district; namely, Gelsenkirchener Bergwerks, Gesellschafts Harpener and Hibernia Companies, and to the co-operation of some 90 per cent. of all collieries in the Rhenish-Westphalian district in the form of the "Rheinisch Westfälische Kohlen Syndicat" in Essen, of which Herr Kirdorf, the general manager of the Gelsenkirchen Company, is the chairman. Coal syndicate. Under these powerful influences the former reckless competition has ceased and the trade is held well in hand.

The benefits of these combinations under admirable organisation have proved of incalculable value, not only to the coal trade itself but to that of iron and steel and trade in general, and consequently when an improvement again set in last year the rise in price was slow and steady, with the result of mutual confidence being permanently established.

As it is the syndicate is not asking the prices which could be got, but merely those which they know the industrial consumer can afford to pay in the face of great demand. There is and has for some time been no necessity for restricting production, especially as State railways cannot even supply the coal trucks in anything like the number necessary to meet the requirements of trade, under which deficiency the coalowners and the miners are suffering. Want of railway coal trucks. This difficulty is increased by low water in the Rhine, which necessitates coal being sent south by rail instead of by barges; the consequence is that stocks in South Germany are being rapidly exhausted, a state of things which also may be found in Holland.

Notwithstanding high cost of production due to increased rates of miners' wages, heavy taxation in the form of compulsory income taxes, increased depths from which older collieries have to draw coal from the lower seams, and in the newer coal winnings to the north and north-east of the Westphalian district (in which direction the coal measures dip), there is a good margin for profit although the cost of production has increased under legislative measures of Government for the better protection of the health of the miners and for the avoidance of accidents.

Government
supervision.

The Government supervision is strict and searching, especially as to ventilation, and the "Oberbergamt" with its mining inspectors has and exercises the power to prohibit the working of fiery seams or mines until the most perfect ventilation is established, and the coal dust is regularly and sufficiently sprayed with water to avoid its ignition; to forbid the use of any but the most approved safety explosive, tested under their own supervision in the official trial station, and to entirely prohibit the use of dangerous explosives in any coal mine they may think proper. In all leading mines things are being done on a still broader gauge in every respect than heretofore, especially as regards machinery, fans, electric light and transmission of power, air compressors, coal washing and sorting apparatus (which latter resemble great factories), coke ovens with extraction of by-products and fire-proof buildings, and for all that such lavish expenditure is considered a sound investment of capital.

Collieries
expenditure
of capital.

I attach some statistical tables in illustration of the state of trade, which will be of interest to British coalowners and commercial men. In more technical matters I am indebted to Herrn Kurt Seeböhm, a German mining engineer (who has passed his "Bergassessor" examination, and has for some years been engaged in practical coal-mining work in lignite pits), for the following report on coke ovens, colliery plants, apparatus, and arrangements at the newest up-to-date collieries in Westphalia.

Fire-proof
buildings.

In all the best appointed collieries all buildings near the shaft are iron and brick structures where, in many cases merely wood or wood and brick framework was used. There is no want of nerve, no false economy in the expenditure of capital nor has there been, and they have pulled through the bad times during which the pitmen earned fair wages, which for some years have been steadily increasing.

Dividends.

Notwithstanding the many and great technical difficulties, the great amalgamated companies, with their large and expensive staff of managers and general managers in receipt of high pay and commission on profits, pay good dividends;* large sums of money are written off for depreciation and put to reserve funds, with the prospect in at least the immediate future of still larger profits; very heavy items of expenditure continuing to increase are the taxes referred to, surface damages caused by the settling down of the shale, sandstone, and super-incumbent chalk marl, which is easily accounted for by the great number of seams from 4 to 6 and

Increasing
cost of
production.

* See pp. 21-33.

9 to 10 feet thick lying at various angles from which the coal is being so rapidly extracted. The subsidence, even where the highest working levels are 120 to 150 fathoms below the surface, is remarkable.

In order to minimise the evil, the system of stowing the shale ^{Surface} and stone excavated out of the cross cut stone drifts, roofs, and ^{subsidence.} floors of the main volley ways is now more generally put in practice, and the huge heaps of rubbish, as well as the band stone, washed out of the coal in washing apparatus, having been thoroughly burned at bank through spontaneous combustion, are gradually disappearing, being taken underground again for ^{Stowage.} stowage. This is, of course, another heavy item of expense. This work is least difficult to accomplish in seams lying at steep angles, where the stone debris is tipped into the goaf from the highest levels of the return air courses.

The long wall system of extracting the coal is also being adopted in modified forms.

Although wages are doubtless lower than in England, even ^{Wages.} in this district, where they stand higher than in any other part of Germany, I think it will still be found* on the average that the working effect per coal hewer and shift is only about half what it is in England, for the following reasons: because the English pitman lives better, works with more judgment and skill, and once he has made his conditions, gives his greater labour power more freely, and last, not least, he is a trained hewer or timber setter or putter as the case may be.

In Westphalia the development of coal mining has been so rapid, as may be seen by statistics in appendix, that new hands had to be recruited from all parts of Germany, Poland, and Holland, chiefly common labourers, and from the northern parts of Italy, a superior class for stone drifting work, the latter fine, stalwart, honest, fearless, hard working men. Of course, there is ^{Pitmen.} the old "Stamm" of trained Rhenish Westphalian pitmen to make the thing possible; from this class the overmen and deputies are selected; hence it is, and in consequence of the large number of off hands that have to be employed (by reason of the number of working levels, inclines, cross-cuts in the steep and varied dips of the coal measures, and of the large number of hands employed overground at coal-washing, screening, and at the great number of engines), that the general working effect per man and day is so low, i.e., per head and ton of coal extracted.

As to the working effect of Westphalian pitmen, I would draw ^{Working} attention to the statistics on pp. 14-15, which go to prove that the ^{effect.} higher the wages or contract price of piece-work, the less coal per man and shift is hewed. Consequently in good times a colliery which is restricted by circumstances to a certain number of working places in the pit, or cannot obtain a sufficient number of hewers, suffers doubly by a higher cost of production and less output. The chief cause for such a state of things is the fear of the pitman that if he does not restrict his working power, the price per tub

* See tables, pp. 16-18.

of coal, or yard forward money, or both, as the case may be, will be cut down.

Wages,
system of
payment.

It is a want of confidence under which the hewer loses the opportunity of putting money away for a rainy day. As a general rule only one shift a day at coal hewing and winding is the practice in this district; now, as in former times, each man's earnings are calculated and paid separately, and each man has his wage's book in which the colliery agents enter the exact number of shifts worked, the amount of money he has received on account, and the balance to his credit, which book has to be produced to the paymaster on pay day in proof of such balance due, which amount must tally with that on the pay sheet; of course, all fines, insurance fees, &c., are entered as deductions.

Effect of
mixture of
nationalities.

The sheets are kept by the "Schichtmeister," shift-master, according to token control as to time and supervision of the manager, as to rates of wages, contracts, &c.

All are subjected to compulsory insurance, and know, as long as they remain at work in this country, they have something to look to in case of sickness or accident, and that they, their wives and children, in case of inability to work, or at their death, will not be left dependent on charity, or thrown on the parish. There is after all something in this form of insurance, which is accumulating capital so rapidly that money is lent out at low rates of interest to the workmen for building purposes.

Workmen's
houses.

Of course, as recruits have to be induced to come into the country, against which the old "Stamm" tries hard to make a stand, on the ground of "the poor fellows being badly treated, led to leave their homes under false pretences, and so forth," the coal companies, under ever-increasing labour requirements, have to build houses; and there they meet with difficulties through the communities refusing to grant concessions, but the obstacle is being overcome, and large colonies are being established, either by the companies, or by private speculators with money borrowed from the former, or in some cases by the pitmen on loans from State insurance funds, so that on the main lines from Cöln, Düsseldorf, to Berlin, the one *viâ* Oberhausen, Dortmund, the other by way of Duisburg, Bochum, Dortmund, and the third by Elberfeld, the country, with all the collieries, factories, and railway sidings illuminated for some 15 to 20 miles with electric light, as seen by passengers from London, Paris, or Brussels to Berlin; appears like one great industrial straggling town.

Strikes.

The absence of great strikes since 1889 proves that the German pitmen find they do not pay. True it is that they have in a great measure been disarmed by the legislation of a "parental government."

Necessity of
coal syndicate.

The German coalowners are long-sighted enough to see that it is desirable in the mutual interests of both that an English coal syndicate should be established on the same lines as have proved so successful in this district, for the simple reason that a reckless competition between them, *i.e.*, between England and Germany,

has an injurious effect on both. Of course, in England, Wales, and Scotland co-operative action is rendered difficult by the number of coal districts to be united, but it has got to be done in one form or another.

As yet the syndicate here is confined to Westphalia, the Dortmund district. The Breslau district sells, I understand, to one contractor, who studies his own interests, as is also the case in Bohemia, but as will be seen by the appendix, Westphalia produces more than half the entire output of the Empire of Germany, and consequently rules the market to a great extent, but always subject to English influence as competitor and the largest coal-producing country in the world. Still Germany sends coal to London, and it would appear that the German coal-owners mean to help the iron and steel masters in the over-sea export of their manufactures, as their most important customers; a new and extended form of co-operation, which will be difficult to realise, and a complicated matter to arrange, especially as it is ostensibly intended to be put in practice merely in that particular branch of their trade. The object is to distribute over a broader basis the burden of the sacrifice which has to be made in prices where they come in direct competition with Belgium, England, and America.

Proposed
coal, iron, and
steel
combination.

The over-sea export trade in coal and coke make still but slow progress, and is of course retarded under increased demand and higher prices in the home markets. The trade started by London firms in light-draft sailing vessels from Ruhrort and Hochfeld on the Rhine, without transshipment direct to London still continues as a return cargo in such boats which bring over guano and china clay to the Rhine harbours, to Düsseldorf, Cologne, &c. (see appendix as to quantities). The present abnormally low water in the river has brought boat traffic, as already mentioned, to a deadlock.

Over-sea
export.

As will be seen in the appendix, the production of bituminous and lignite coal in Germany has doubled during the period 1876-95 (see pp. 33-36). Imports and exports have increased about twofold respectively, and the consumption has more than doubled, notwithstanding extreme depression, which existed during a considerable part of the time, as already referred to, and the fact that in Westphalia production has been restricted by the coal syndicate.

Imports and
exports.

Naturally the depression at the end of the seventies and greater part of the eighties had the effect of damping enterprise, especially under the heavy expenditure of capital entailed by the greater depth to which the shafts have to be sunk in the north and north-east of the district. But still some new workings have been opened out and the coalfield has been and is being explored by deep borings put down under the most approved application of steam power and mechanical appliances, finding the first coal in some cases at depths of 600 to 800 metres, which mining engineers will know means winding coal and pumping water from the lowest working levels of at least 800 to

Increasing
depth of coal
measures of
north.

1,000 metres, *i.e.*, in coal measures at steep angles such as here exist; but even without such extension and increased numbers of winning points the field, as already opened out, is capable of enormous expansion in production of quantity, and enterprise is re-stimulated by the present improved state of things; therefore the assumption would appear to be correct under the development of industry in general and the extension of markets that consumption and production will increase in a far higher ratio in the coming than in the past decade, so that in all probability the present figures will be doubled within 10 to 15 years.

Competition
matter of
freights.

These figures will give men something to think over, and I repeat that competition with English coal at least in German, Dutch, and Belgian ports is a matter of freights; and railway men know, where dealing with large quantities, what can be done in that direction. Paris, I think I am correct in stating, takes still very considerable quantities of gas coal from Westphalia, and the present freight of 153.30 fr. per 10,000 kilos., 12s. 3d. per ton, has been prolonged to December 31, 1898.

Paris lighted
by West-
phalian coal.

The gasworks there took their coal from this district, previous to the Franco-German war; they were so well pleased with quality and prices that the trade was opened out again shortly after peace was proclaimed, and it has continued ever since, which proves the Germans know well how to treat a good customer. Of course, there is an immense advantage in being able to send the coal direct into the consumer's yard in the trucks loaded at the colliery screens.

Export to
London
handicapped.

It is also possible to light London with Westphalian coal without transshipment, but in the absence of a canal the coal has to be sent by rail to the Rhine, where the distance being so short the differential rates do not come into play, and traffic on the river is subjected to interruption through floods, low water, and ice, with which the German, Dutch, and Belgian ports are also sometimes blocked; this is unfortunate for this district, as it necessitates large depôts in over-sea ports and places of consumption; consequently, the German coalowners have to devote their attention more to European continental markets such as Holland, Belgium, and France.

The trade to Italy is not, I think, important, owing to the long overland transport.

Great Britain has the advantage of having her ports open at all seasons, but it is one to which the British pitman must be careful not to attach too much importance.

There is another point where the Germans, in shipping export trade, are in difficulties, it is that their better smokeless steam coal, at least in Westphalia, which is best suited for naval purposes, is so very soft that it can hardly stand the test of shipment, not to talk of transshipment, but then the gas and long flame coal is hard and strong.

Differential
rates.

Westphalia is heavily handicapped in being so far inland; this disadvantage they seek to reduce through differential rates, which are capable of still further reductions on the old well-known principle

"quantity pays"; without it neither collieries nor railways can have profits to divide, and where such great transport monopolies fail to work in the interests of home industries the material welfare of a nation must suffer.

It is a strange thing when we consider the great and many risks of coal-mining, the responsibilities which are brought home to the owners in this age of legislation under which, to my personal knowledge, many employers groan, that there is more confidence in this particular industry than in any other, especially in Prussia, where the laws are so severe and so rigidly administered. Remarkable as the fact is, it is beyond dispute that coal-mining shares are considered a thoroughly safe investment; of course there is and has been a great deal of speculation in such paper, fortunes have been made, and much money lost over it, but for a very considerable time the greater number of buyers are investors, a state of things which is in a large measure due to the coal syndicate and its far-reaching influences, and which has effected such an unexampled reformation that there is nothing left for the speculator in this field, and still the coal shares stand very high, thereby representing an enormous capital, in illustration of which lists of market prices are annexed. The quotations are easy to read, as they are simply per cents. in joint stock, limited liability companies, and in the "Gewerkschaften" (private companies without any fixed or predetermined amount of capital) of a thousand registered shares, the selling price per "Kuxe" or share in capital is quoted, the par value in the former being 100, the nominal value in old companies being 600 marks, in newer ones 1,000 marks, or 1,200 marks per share.

As a general rule it may be assumed that a single well-appointed colliery with a pair of shafts represents a book cost of say 200,000*l.* to 300,000*l.* I speak here of the deep mines working the better classes of coal. Of course there are a number of smaller collieries towards the outcrop of the coal measures to the south and south-west of the district, where the book cost may not be more than 100,000*l.* to 200,000*l.*, against which are a considerable number, where the cost, owing to exceptional difficulties is even in excess of 300,000*l.*

The total actual cost or capital expended by the original shareholders would be difficult to estimate even approximately; but there are some 200* coal mines in the Rhenish Westphalian district; and 250,000*l.* is more likely to be under than over the average amount of capital of each colliery, which means 50,000,000*l.* in coal alone, a very small portion of which, perhaps all told, 1,000,000*l.*, being Belgian and French, the remainder is all German money, and to a very great extent this money is the produce of coal, *i.e.*, profits won out of mining operations re-invested; this is merely the book cost to the existing

* The number of "mines" given in tables of appendix does not represent that of two shaft collieries.

companies (capital of State mines is not included), and if so, what must the amount be which has been lost and won in this branch of industry in the last 50 years, at times when shares fell to 20 to 30 per cent., to rise again to 250 to 300 and even 450 and 500 per cent. There are cases where almost the entire capital expended on a single colliery by one or two different companies has been lost, and the colliery only brought into profit by a further outlay of a third company in amount of some 250,000*l.*, which means a total cost of 750,000*l.* to 800,000*l.*, and others where after very large expenditure the undertaking has been completely abandoned. In many instances, however, the original companies have sold collieries for three or four times their book cost.

German
competitors
with England.

Of course, to English coalowners the whole business may appear small, though not perhaps as to the money invested in a single colliery, but if they call to mind what this industry was 30 to 40 years ago, when they did not give its existence a thought, they will then, I think, say that the progress made is considerable (see tables of production in appendix), and they would on closer investigation find that in the practical applied science of mining and in commercial management, the Westphalian apprentice is now a worthy competitor, doubly so because they, the Westphalians, have adopted all that is best in England, and have improved on it to meet the requirements of this district from a technical point of view. Commercially, they took a new course, supported by the railways, that support being the outcome of prolonged and persistent agitation.

Slight
depression in
demand.

Since writing the foregoing a slight depression in demand for coal set in, as a natural result of the most remarkably mild winter which has been experienced in this part of Germany within the period of an average lifetime. This depression was accompanied by a downward tendency in prices, and in the share market.

Restriction of
production.

The Rhenish Westphalian coal syndicate found it then necessary to, in a slight extent, restrict production, the beneficial result of which was to steady the market and maintain prices. The demand for household coal has been of course abnormally small for the season of the year, but on the other hand the expansion of trade in general is so great as to obviate, under the controlling hand of the syndicate, any depression worthy of note, and the prospects of the general flourishing state of the coal and iron trade continuing, are enhanced by the requirements of the State railways in rolling stock, which have been so much neglected, and in a much heavier class of rail, of the navy for ships of war, of the merchant service, for steamers and other vessels.

Railway
improvements.

It would appear that the State railway authorities are awakening to the fact of the necessity of improvement in the construction of permanent way, which is the inevitable result of the heavier class of locomotives and the higher speeds of traffic; their attention has been repeatedly drawn to this

matter by associations of engineers, men who long since saw that the rails in use were much too light to stand this additional strain, but the danger of the present system has been especially brought home to them by the alarming number of fatal accidents which have taken place through trains leaving the rails not only at points but on main lines. The traffic, goods and passenger, has so enormously increased and the requirements are so great that speed had to be accelerated so much that trains approach, enter, or pass through stations under the use of the automatic brake at speeds formerly unknown in this country, but still far behind those of England, so that were it not for the discipline and good management of traffic officials, the number of accidents would be far more alarming than they are; in former times travelling in Germany by rail was notoriously safer than in perhaps any other part of the world.

Accidents
through
higher speed.

If the permanent way is in fault, which it appears in a great measure admittedly to be, probably the reason is not to be found merely in the section and weight of rails, but in the mode of spiking them down direct on to the sleepers without chairs and side wedges, as used in England, where the rails are said to be heavier; possibly also, a sufficient amount of suitable ballast not being used, the roads are not elastic enough for high speed.

Goods traffic.

In the Westphalian coal and iron works district, the goods traffic is especially heavy, in addition to which there is the through-going and local passenger traffic to be dealt with, and both are rapidly increasing; as to the amount of the coal traffic, I quote the following figures: the total quantity of coal and coke carried over the State railways in this district was:—

Year.						Quantity.
						Tons of 1,000 kilos.
1886	..	..	..	..	..	23,867,560
1894	..	..	..	..	..	34,305,340
1895	..	..	..	..	..	34,638,840
1896	..	..	..	..	..	37,906,890

NOTE.—The amount of coal sold in 1896 was 44,888,227 tons, as compared to 1897, being 48,378,644 tons.

The increase for the year 1897 must have been much higher than that from 1895 to 1896. As coal is generally loaded in 10 ten trucks, the number for 1896 of loaded coal trucks was 3,790,683, or double that number had to pass backwards and forwards over the railways of Westphalia. These numbers dealt with, in so thickly populated an industrial district, over, to a great extent, lines of through-going international traffic, to which must be added all that connected with iron, steel, and other industries and general commerce, are, I should think even for English ideas, large. Many years ago a man who was an authority on industrial and railway matters, foreseeing the

development of which the country was capable, advocated the laying down, at least on through-going routes, of four lines of rails, two for goods, and two for passengers, so that the fast and slow traffic might be kept separate and distinct. Of course the adoption of this system, under the greatly increased value of land, buildings, and building sites, would now involve the expenditure of a much larger amount of capital than would have been at that time necessary, but unless canals are constructed to relieve the railways of the heavier portion of the goods traffic, it must doubtless sooner or later be done.

In illustration of the extent and progress of coal mining and iron industries, I attach a number of tables, also in connection with imports and exports, cost of production, daily and yearly earnings of pitmen, and of all hands employed at collieries, also financial statements as to some of the leading coal companies, giving production, capital, extent of fee-simple coal fields which are not subjected to any royalty whatever, and selling prices of the shares, showing the effect of the rise and fall of prices, which are now being better regulated under the control of the coal syndicate.

The progress made in 1897 is very considerable, as to which I hope to report upon at a later period when the necessary data can be procured.

American
competition.

In conclusion I may remark, at a meeting held the other day by the "Deutschen Eisenhüttenleute," attention was especially drawn to the development of the iron and steel industries in the United States of America, and the excessively low railway and canal freights, which are being reduced for raw material to 0·8 pf. and 0·64 pf., and for finished manufactures to 1·2 pf. or decimals of shillings per ton and kilometre; they look upon America, with its great wealth of ores and coal, as being such a dangerous competitor as to necessitate further reductions of German railway rates.

NUMBER and Power of Steam Engines used in Mining Operations in the "Oberbergamtsbezirk," Dortmund
(Royal Mining Board District).

Government District of—	Pumping.		Hauling.		Pumping and Hauling.		Crab.		Fan.		Separation.		Washing.	
	Number.	Horse-power.	Number.	Horse-power.	Number.	Horse-power.	Number.	Horse-power.	Number.	Horse-power.	Number.	Horse-power.	Number.	Horse-power.
Onabrück	15	1,332	16	416	...	...	4	23	1	25	2	33	3	92
Münster...	35	12,664	43	17,107	...	...	16	564	24	2,969	19	445	13	1,255
Minden...	2	80	4	80	...	...	...	...	...	...	...	...	...	...
Arnsberg	297	78,810	275	78,201	...	...	119	3,951	149	12,408	...	3,512	103	12,354
Düsseldorf	91	18,578	127	24,426	...	...	61	1,177	53	4,730	...	1,332	38	3,345
Total	440	112,318	465	120,240	1	6	200	5,620	237	20,130	209	5,322	138	17,046
" 1894	422	105,540	432	112,513	3	211	196	6,102	233	17,907	213	5,072	136	16,098
Increase, 1895	18	6,676	13	7,727	...	...	10	518	4	2,223	...	250	3	948
Decrease "	...	...	...	...	2	208	...	...	...	...	4	...	...	...

Government District of—	Feeding.		Different Engines.		Coke pressing.		Brick Kiln.		Locomotives and Locomotives.		Total.	
	Number.	Horse-power.	Number.	Horse-power.	Number.	Horse-power.	Number.	Horse-power.	Number.	Horse-power.	Number.	Horse-power.
Onabrück	15	27	12	130	...	...	...	...	2	32	70	2,115
Münster	61	501	61	6,337	8	97	5	276	28	2,755	365	44,162
Minden...	2	3	1	8	...	...	...	...	3	300	11	431
Arnsberg	481	3,049	831	29,070	130	2,490	12	833	147	11,891	2,686	237,483
Düsseldorf	214	1,271	241	5,843	34	455	6	302	56	3,904	979	66,163
Total	763	4,851	1,207	40,538	172	3,042	23	1,411	236	18,882	4,111	249,354
" 1894	747	4,462	...	34,554	165	2,862	19	1,112	227	17,624	3,910	223,057
Increase, 1895	16	389	123	6,034	7	180	4	289	9	1,258	201	26,297
Decrease "	...	...	...	...	...	...	...	...	...	...	...	...

WORKING Effect in the Dortmund Coal Mines.

Year.	Production.	Number of Workmen Employed.	Number of Shifts Worked.	Shifts Worked per Year.	Per Head.					
					Working Effect in the Whole Year.	More or Less than in the Last Year in Per Cents.	Less than in the Year 1888 in Per Cents.	Working Effect per Shift.	More or Less than in the Last Year in Per Cents.	Less than in the Year 1888 in Per Cents.
					Tons.				Tons.	
1888	33,223,614	102,195	32,744,272	321	325	..	..	1,015	..	..
1889	33,855,110	112,073	34,536,776	308	302	- 7.1	..	0.981	- 3.8	..
1890	35,469,290	123,984	37,943,370	306	286	- 5.3	..	0.935	- 4.7	..
1891	37,402,494	134,603	41,302,478	307	278	- 2.8	..	0.906	- 3.1	..
1892	36,853,502	138,281	41,167,434	298	267	- 4.0	..	0.895	- 1.2	..
1893	38,513,146	142,285	42,891,069	301	271	- 1.5	..	0.900	- 0.6	..
1894	40,813,073	148,280	45,101,880	304	274	- 1.1	..	0.900	- 0.0	..
1895	41,145,744	150,212	45,818,644	305	274	- 0.0	..	0.898	- 0.2	..
1896	44,893,304	157,137	49,437,574	315	286	- 4.4	- 12.0	0.908	- 1.1	- 10.5

WORKING Effect in the Saarbrücken Coal Mines.

Year.	Production.	Number of Workmen Employed.	Number of Shifts Worked.	Per Head.						
				Shifts Worked per Year.	Working Effect in the Whole Year.	More or Less than in the Last Year in Per Cents.	Less than in the Year 1888 in Per Cents.	Working Effect per Shift.	More or Less than in the Last Year in Per Cents.	Less than in the Year 1888 in Per Cents.
					Tons.			Tons.		
1888	6,238,191	24,402	7,044,511	289	256	..	..	0.886	..	..
1889	6,083,514	25,866	7,402,343	288	237	- 7.4	..	0.822	- 7.2	..
1890	6,212,540	27,528	8,099,128	294	226	- 4.6	..	0.767	- 6.7	..
1891	6,389,960	28,897	8,447,211	292	221	- 2.2	..	0.756	- 1.4	..
1892	6,258,890	29,823	8,416,568	282	210	- 5.0	..	0.744	- 1.6	..
1893	5,893,177	27,536	7,544,148	274	214	- 1.9	..	0.780	- 4.8	..
1894	6,591,862	30,070	8,587,175	284	219	- 2.3	..	0.772	- 1.0	..
1895	6,886,098	30,531	8,691,261	285	226	- 2.9	..	0.792	- 2.6	..
1896	7,705,671	32,396	9,538,614	294	238	- 5.3	- 7.0	0.808	- 2.0	- 8.8

AVERAGE Net Earnings* of all Classes of Workmen in Coal Mines.
DORTMUND.

Year.	Underground Workmen (Hewers and Putters).			Other Underground Workmen.†			Overground Workmen.‡			General Average of all Hands Employed.		
	Number of Workmen.	Shift Wages.	Yearly Earnings.	Number of Workmen.	Shift Wages.	Yearly Earnings.	Number of Workmen.	Shift Wages.	Yearly Earnings.	Number of Workmen.	Shift Wages.	Yearly Earnings.
1888	65,967	Marks. 2·96	Marks. 986	14,852	Marks. 2·34	Marks. 763	17,548	Marks. 2·57	Marks. 797	102,195	Marks. 2·69	Marks. 863
1889	72,254	3·42	1,028	16,342	2·60	817	19,188	2·57	857	112,073	3·05	941
1890	78,226	3·98	1,183	19,462	2·93	920	21,438	2·82	937	123,984	3·49	1,067
1891	82,719	4·08	1,217	23,285	2·95	925	23,163	2·85	950	134,803	3·54	1,086
1892	75,616	3·87	1,120	33,319	2·69	805	24,169	2·76	898	138,231	3·28	976
1893	75,336	3·71	1,084	36,612	2·59	791	25,576	2·70	878	142,285	3·14	946
1894	77,945	3·73	1,102	38,996	2·61	805	26,608	2·72	889	145,280	3·16	961
1895	78,091	3·75	1,114	39,824	2·65	816	27,462	2·74	893	150,212	3·18	968
1896	81,927	3·90	1,203	41,141	2·72	862	28,912	2·81	934	157,137	3·29	1,035

* The wages are taken deducting all charges for the miners' relief fund (Knappschafts und Invaliden Kasse), for gear and light.

† Stone drifters, timber setters in main ways, horse drivers, brakemen, &c.

‡ Women and boys not included.

N.B.—In the Dortmund district the total net amount of wages for the year ending December 31, 1896, was 162,704,245 marks (8,135,212*l.*).
In the year 1896 there were at Dortmund in underground workmen (hewers and putters) 52 per cent. of all workmen.

AVERAGE Net Earnings* of all Classes of Workmen in Coal Mines.

SAARBRÜCKEN.

Year.	Underground Workmen (Hewers and Putters).			Other Underground Workmen.†			Overground Workmen.‡			General Average of all Hands Employed.		
	Number of Workmen.	Shift Wages.	Yearly Earnings.	Number of Workmen.	Shift Wages.	Yearly Earnings.	Number of Workmen.	Shift Wages.	Yearly Earnings.	Number of Workmen.	Shift Wages.	Yearly Earnings.
	Marks.	Marks.	Marks.	Marks.	Marks.	Marks.	Marks.	Marks.	Marks.	Marks.	Marks.	Marks.
1888	17,338	3·06	885	3,010	2·60	785	3,949	2·55	711	24,402	2·92	842
1889	18,460	3·44	976	3,194	2·87	879	8,853	2·70	798	25,666	3·24	933
1890	19,851	4·09	1,180	3,574	3·23	1,013	3,930	2·98	906	27,523	3·79	1,114
1891	20,730	4·21	1,212	3,743	3·30	1,018	4,228	3·01	908	28,897	3·89	1,137
1892	17,767	4·23	1,167	7,370	2·96	863	4,448	2·98	869	29,823	3·69	1,042
1893	16,177	3·83	1,021	6,826	2·78	794	4,261	2·84	812	27,536	3·87	925
1894	17,734	3·68	1,020	7,410	2·65	791	4,488	2·79	810	30,070	3·24	921
1895	18,057	3·70	1,030	7,475	2·69	796	4,563	2·90	826	30,531	3·27	929
1896	19,308	3·73	1,079	7,774	2·67	821	4,795	2·76	826	32,396	3·28	966

* The wages are taken deducting all charges for the miners' relief fund (Knappschafts und Invaliden Kasse), for gear and light.

† Stone drifters, timber setters in main ways, horse drivers, brakemen, &c.

‡ Women and boys not included.

N.B.—In the year 1896 there were at Saarbrücken in underground workmen (hewers and putters) 59·6 per cent. of all workmen.

DÜSSELDORF.

AVERAGE Net Earnings* of all Classes of Workmen in Coal Mines.
AACHEN.

Year.	Underground Workmen (Hewers and Putters).			Other Underground Workmen.†			Overground Workmen.‡			General Average of all Hands Employed.		
	Number of Workmen.	Shift Wages.	Yearly Earnings.	Number of Workmen.	Shift Wages.	Yearly Earnings.	Number of Workmen.	Shift Wages.	Yearly Earnings.	Number of Workmen.	Shift Wages.	Yearly Earnings.
	Marks.	Marks.	Marks.	Marks.	Marks.	Marks.	Marks.	Marks.	Marks.	Marks.	Marks.	Marks.
1888	..	3.06	918	..	2.46	778	..	2.34	692	7,207	2.72	817
1889	..	3.43	991	1,004	2.74	847	1,623	2.63	828	7,712	3.01	878
1890	..	4.649	1,062	1,011	2.75	877	1,689	2.49	807	8,023	3.10	948
1891	..	4.926	951	1,034	2.64	808	1,781	2.46	778	8,160	2.90	865
1892	..	4.775	920	1,262	2.52	764	1,783	2.44	795	8,259	2.81	842
1893	..	4.685	925	1,541	2.51	770	1,682	2.44	798	8,187	2.81	848
1894	..	3.15	951	1,507	2.53	788	1,851	2.49	808	8,551	2.85	868
1895	..	3.20	991	1,511	2.60	806	1,915	2.54	834	8,719	2.91	899
1896	..	3.30		1,472								

* The wages are taken deducting all charges for the miners' relief fund (Knappechafts und Invaliden Kasse), for gear and light.
 † Stone drifters, timber setters in main ways, horse drivers, brakemen, &c.
 ‡ Women and boys not included.

N.B.—In the year 1896 there were at Aachen in underground workmen (hewers and putters) 57.4 per cent. of all workmen.

COAL Mining Wages Statistics, from Report of "Bergbauverein," for the Year 1896.

Number of all hands employed in Upper Silesia .. 54,583
 " " Lower " .. 18,404

Year.	Upper Silesia.						Lower Silesia.					
	Miners (proper) Underground.			Other Hands Employed Underground.			Miners (Proper) Underground.			Other Hands Employed Underground.		
	Earning per Shift.		Earning per Annum.	Earning per Shift.		Earning per Annum.	Earning per Shift.		Earning per Annum.	Earning per Shift.		Earning per Annum.
	Marks.	Marks.	Marks.	Marks.	Marks.	Marks.	Marks.	Marks.	Marks.	Marks.	Marks.	Marks.
1889 ..	2·31	638	614	1·89	539	728	2·40	728	2·35	727	2·03	634
1890 ..	2·71	748	699	2·10	683	792	2·67	792	2·52	758	2·18	672
1891 ..	2·88	774	728	2·17	649	824	3·74	824	2·57	779	2·28	690
1892 ..	2·79	789	709	2·16	639	805	2·67	805	2·57	780	2·23	693
1893 ..	2·74	727	704	2·15	622	775	2·60	775	2·54	762	2·21	687
1894 ..	2·79	780	708	2·15	619	773	2·89	773	2·49	749	2·18	670
1895 ..	2·78	740	713	2·14	634	798	2·64	798	2·52	765	2·14	669
1896 ..	2·82	768	731	2·16	640	814	2·68	814	2·60	793	2·24	686
1897 (1st quarter) ..	2·82	..	..	2·17	..	..	2·73	..	2·67	..	2·27	..

COAL Mining Wages Statistics, from Report of "Bergbauverein," for the Year 1896.

Number of hands employed in the Ruhr district ..	157,137
" " " Saar ..	32,396
" " " Aachen ..	8,719

Year.	Ruhr District.*						Saar District.						Aachen District.					
	Miners (proper) Underground.		Hands Employed Overground.		Miners (proper) Underground.		Hands Employed Overground.		Miners (proper) Underground.		Hands Employed Overground.		Miners (proper) Underground.		Hands Employed Overground.		Miners (proper) Underground.	
	Shift Earnings.	Yearly Earnings.	Shift Earnings.	Yearly Earnings.	Shift Earnings.	Yearly Earnings.	Shift Earnings.	Yearly Earnings.	Shift Earnings.	Yearly Earnings.	Shift Earnings.	Yearly Earnings.	Shift Earnings.	Yearly Earnings.	Shift Earnings.	Yearly Earnings.	Shift Earnings.	Yearly Earnings.
1889	3.42	1,028	2.80	817	3.44	976	2.87	879	2.70	798	2.98	906	3.06	913	2.46	773	2.34	692
1890	3.98	1,183	2.83	920	4.09	1,180	2.23	1,013	2.98	906	2.98	906	3.42	991	2.74	847	2.53	828
1891	4.08	1,217	2.95	925	4.21	1,212	3.30	1,018	3.01	908	3.01	908	3.56	1,082	2.75	877	2.49	807
1892	3.87	1,120	2.89	906	4.23	1,167	2.96	868	2.98	869	2.98	869	3.28	951	2.44	808	2.46	778
1893	3.71	1,084	2.89	791	3.83	1,021	2.78	784	2.84	812	2.84	812	3.18	920	2.52	764	2.44	795
1894	3.73	1,102	2.61	806	3.88	1,020	2.46	791	2.79	810	2.79	810	3.15	925	2.51	770	2.44	788
1895	3.75	1,114	2.65	816	3.70	1,030	2.69	796	2.80	828	2.80	828	3.20	991	2.63	788	2.49	806
1896	3.90	1,203	2.72	862	3.73	1,079	2.47	821	2.76	826	2.76	826	3.30	991	2.60	806	2.54	834
1897 (first quarter)	4.14	...	2.78	...	3.77	...	2.47	...	2.74	...	2.74	...	3.50	...	2.73	...	2.59	...

* In the Ruhr district miners (proper) underground represent 62.1 per cent.; other hands employed represent 26.2 per cent.; hands employed overground represent 18.4 per cent., making a total of 96.7 per cent.

Note.—The above districts with those on the foregoing table, employed thus in coal mining in the year 1896, together 271,239 hands; or there being 73,000 hands employed in all other mining groups in Prussia 79 per cent. of the total number in that kingdom, thus an important guide is given as to the cost of coal labour in this country.

**FINANCIAL Statements as to some of the Leading Companies
in the Dortmund District.**

ARENBERG Mining Company, Limited.

Fee-simple coalfield property of company, 4,025 acres. Share capital, 150,000*l*.

					Amount.
					<i>£</i>
Mortgage bonds—					
1st emission	..	..	..	..	75,000
2nd „	..	..	..	..	75,000
3rd „	..	..	..	..	100,000
Total	..	..	..	..	250,000

Rates of interest reduced from 6 to 5 per cent., subsequently to 4 per cent. Rates of yearly profits divided as follows (from 1863 to 1896):—

Year.					Per Cent.
1863	..	..	..	..	..
1864	..	..	..	..	..
1865	..	..	..	..	2½
1866	..	..	..	..	..
1867	..	..	..	..	3
1868	..	..	..	..	3
1869	..	..	..	..	4
1870	..	..	..	..	6
1871	..	..	..	..	20
1872	..	..	..	..	25
1873	..	..	..	..	40
1874	..	..	..	..	25
1875	..	..	..	..	10
1876	..	..	..	..	..
1877	..	..	..	..	..
1878	..	..	..	..	..
1879	..	..	..	..	..
1880	..	..	..	..	6
1881	..	..	..	..	3
1882	..	..	..	..	5
1883	..	..	..	..	6
1884	..	..	..	..	6
1885	..	..	..	..	6
1886	..	..	..	..	7
1887	..	..	..	..	8
1888	..	..	..	..	15
1889	..	..	..	..	30
1890	..	..	..	..	80
1891	..	..	..	..	80
1892	..	..	..	..	40
1893	..	..	..	..	30
1894	..	..	..	..	35
1895	..	..	..	..	40
1896	..	..	..	..	50

Quotation of shares, 1867-96 :—

Year.						Per Cent.
1867	..	..	..	..	..	47·50
1868	..	..	..	..	..	52
1869	..	..	..	..	..	61
1870	..	..	..	..	..	..
1871	..	..	..	..	..	220
1872	..	..	..	..	..	356
1873	..	..	..	..	..	321
1874	..	..	..	..	..	320
1875	..	..	..	..	..	196
1876	..	..	..	..	..	139
1877	..	..	..	..	..	100
1878	..	..	..	..	..	82
1879	..	..	..	..	..	168
1880	..	..	..	..	..	173
1881	..	..	..	..	..	173
1882	..	..	..	..	..	150
1883	..	..	..	..	..	142·25
1884	..	..	..	..	..	130·10
1885	..	..	..	..	..	..
1886	..	..	..	..	..	130·10
1887	..	..	..	..	..	..
1888	..	..	..	..	..	303·25
1889	..	..	..	..	..	520
1890	..	..	..	..	..	532
1891	..	..	..	..	..	510
1892	..	..	..	..	..	397
1893	..	..	..	..	..	427·50
1894	..	..	..	..	..	539·80
1895	..	..	..	..	..	625
1896	..	..	..	..	..	774
Last quotation, February 24, 1898						769

Production of coal :—

Year.						Quantity.
						Tons of 1,000 kilos.
1891	..	..	..	..	..	1,114,916
1892	..	..	..	..	..	992,680
1893	..	..	..	..	..	1,082,812
1894	..	..	..	..	..	1,090,416
1895	..	..	..	..	..	1,046,249
1896	..	..	..	..	..	1,169,715

CONCORDIA Mining Company, Limited.

Fee-simple coalfield property of company, 3,817 acres. Share capital, 325,000*l*. Mortgage bonds, 75,000*l*. Interest rate reduced from 5 to 4 per cent. Profits divided, 1890-96 :—

Year.						Per Cent.
1890	..	..	..	..	..	14
1891	..	..	..	..	..	10
1892	..	..	..	..	..	5½
1893	..	..	..	..	..	4
1894	..	..	..	..	..	5½
1895	..	..	..	..	..	7½
1896	..	..	..	..	..	13

Quotation of shares on market, 1890-96 :—

Year.						Per Cent.
1890	..	..	..	..	..	130·60
1891	..	..	..	..	..	89·00
1892	..	..	..	..	..	70·50
1893	..	..	..	..	..	80·25
1894	..	..	..	..	..	115·00
1895	..	..	..	..	..	135·80
1896	..	..	..	..	..	238·75

Production of coal :—

Year.						Quantity.
						Tons of 1,000
						kilos.
1892	..	..	..	..	..	539,097
1893	..	..	..	..	..	587,628
1894	..	..	..	..	..	549,729
1895	..	..	..	..	..	523,383
1896	..	..	..	..	..	634,704

HARPENER Mining Company, Limited.

This Company had originally the Heinrich and Gustav collieries near Dortmund, and subsequently purchased Amalie, Prinz von Preussen, Caroline, New Iserlohn, Vollmond, Von der Heydt, Julia, Recklinghausen I, Recklinghausen II, Gneisenau and Preussen I und II; later on Schildwacht, Scharnhorst, and Hugo collieries.

Fee-simple coalfield property of company, 21,470 acres. Share capital, 2,400,000*l*, 1895. Mortgage bonds, 600,000*l*. Rate of interest, 4½ per cent. Profits divided, 1859-60 to 1895-96 ;—

Year.						Per Cent.
1859-60	..	..	..	..	..	..
1860-61	..	..	..	..	..	..
1861-62	..	..	..	..	..	2
1862-63	..	..	..	..	..	..
1863-64	..	..	..	..	..	..
1864-65	..	..	..	..	..	5
1865-66	..	..	..	..	..	6
1866-67	..	..	..	..	..	7
1867-68	..	..	..	..	..	5
1868-69	..	..	..	..	..	5
1869-70	..	..	..	..	..	..
1870-71	..	..	..	..	..	15
1871-72	..	..	..	..	..	25
1872-73	..	..	..	..	..	60
1873-74	..	..	..	..	..	40
1874-75	..	..	..	..	..	15
1875-76	..	..	..	..	..	..
1876-77	..	..	..	..	..	..
1877-78	..	..	..	..	..	2½
1878-79	..	..	..	..	..	2½
1879-80	..	..	..	..	..	3½
1880-81	..	..	..	..	..	5½
1881-82	..	..	..	..	..	2
1882-83	..	..	..	..	..	3½
1883-84	..	..	..	..	..	..
1884-85	..	..	..	..	..	..
1885-86	..	..	..	..	..	..
1886-87	..	..	..	..	..	..
1887-88	..	..	..	..	..	2½
1888-89	..	..	..	..	..	6
1889-90	..	..	..	..	..	15
1890-91	..	..	..	..	..	20
1891-92	..	..	..	..	..	10
1892-93	..	..	..	..	..	5
1893-94	..	..	..	..	..	3
1894-95	..	..	..	..	..	5
1895-96	..	..	..	..	..	6

Quotation of shares, 1863-96 :—

Year.						Per Cent.
1863	..	..	..	..	..	40·00
1864	..	..	..	..	..	60·00
1866	..	..	..	..	..	84·00
1866	..	..	..	..	..	85·00
1867	..	..	..	..	..	95·00
1868	..	..	..	..	..	92·50
1869	..	..	..	..	..	88·00
1870	..	..	..	..	..	101·75
1871	..	..	..	..	..	230·00
1872	..	..	..	..	..	408·00
1873	..	..	..	..	..	387·00
1874	..	..	..	..	..	174·00
1875	..	..	..	..	..	123·00
1876	..	..	..	..	..	81·50
1877	..	..	..	..	..	73·00
1878	..	..	..	..	..	80·00
1879	..	..	..	..	..	138·25
1880	..	..	..	..	..	105·00
1881	..	..	..	..	..	126·00
1882	..	..	..	..	..	109·90
1883	..	..	..	..	..	97·50
1884	..	..	..	..	..	..
1885	..	..	..	..	..	77·00
1886	..	..	..	..	..	66·25
1887	..	..	..	..	..	75·20
1888	..	..	..	..	..	127·50
1889	..	..	..	..	..	326·90
1890	..	..	..	..	..	199·50
1891	..	..	..	..	..	142·25
1892	..	..	..	..	..	119·20
1893	..	..	..	..	..	136·50
1894	..	..	..	..	..	146·30
1895	..	..	..	..	..	167·80
1896	..	..	..	..	..	176·30
Last quotation, February 24, 1898						191·75

Production of coal :—

Year.				Quantity in Tons of 1,000 Kilos.		
				Coal.	Coke.	Briquettes.
1889-90	..	..	..	2,196,733	437,136	34,167
1890-91*	..	..	..	2,324,429	531,339	33,775
1891-92*	..	..	..	2,860,434	613,323	43,753
1892-93*	..	..	..	2,934,082	606,334	51,535
1893-94*	..	..	..	2,930,110	616,575	50,786
1894-95*	..	..	..	3,003,350	696,139	47,771
1895-96*	..	..	..	3,107,520	722,296	51,172

* Including Gneisenau, excluding Hugo; not in coal work, Preussen I and II, and Scharnhorst. Gneisenau, in 1889-90, 184,989 tons. Production of Hugo, before purchase, 1889-90, 316,988 tons; 1890-91, 401,434 tons; 1891-92, 399,657 tons; 1892-93, 385,804 tons; 1893-94, 477,379 tons; 1894-95, 442,845 tons.

HIBERNIA Mining Company, Limited.

Formerly two Irish unlimited liability companies, Gewerkschaften Hibernia and Shamrock, founded in 1855-56 or 1857, purchased by the Berliner Handels Gesellschaft in 1873, for about four times the book cost, and brought out as a limited company, under name of Hibernia und Shamrock Bergwerks Gesellschaft, with a capital of about 800,000*l*. In 1886 the company purchased the Wilhelmine Victoria Colliery; in 1887 the name was changed to Hibernia, and in 1889 additional coalfields, adjoining those of Shamrock, were bought, when two new shafts and plant were put down.

Fee-simple coalfield property, 5,176 acres. Share capital is now 1,120,000*l*. Mortgage bonds, 360,000*l*. Rate of interest, 4½ per cent. Profits divided since 1873 to 1896 :—

Year.						Per Cent.
1873	..	..	..	..	..	13
1874	..	..	..	..	..	4
1875	..	..	..	..	..	2½
1876	..	..	..	..	..	1½
1877	..	..	..	..	..	2½
1878	..	..	..	..	..	2½
1879	..	..	..	..	..	3½
1880	..	..	..	..	..	7½
1881	..	..	..	..	..	4
1882	..	..	..	..	..	5½
1883	..	..	..	..	..	6
1884	..	..	..	..	..	6
1885	..	..	..	..	..	6
1886	..	..	..	..	..	5½
1887	..	..	..	..	..	4½
1888	..	..	..	..	..	7½
1889	..	..	..	..	..	8½
1890	..	..	..	..	..	19
1891	..	..	..	..	..	12
1892	..	..	..	..	..	5½
1893	..	..	..	..	..	4
1894	..	..	..	..	..	5½
1895	..	..	..	..	..	7½
1896	..	..	..	..	..	9½
1897 (to be divided)	..	..	..	..	..	12

Quotation of shares on market, 1873-96 :—

Year.						Per Cent.
1873	..	..	..	..	..	107·50
1874	..	..	..	..	..	80·75
1875	..	..	..	..	..	48·00
1876	..	..	..	..	..	34·00
1877	..	..	..	..	..	48·00
1878	..	..	..	..	..	46·00
1879	..	..	..	..	..	94·00
1880	..	..	..	..	..	99·75
1881	..	..	..	..	..	91·00
1882	..	..	..	..	..	86·50
1883	..	..	..	..	..	98·90
1884	..	..	..	..	..	96·40
1885	..	..	..	..	..	97·50
1886	..	..	..	..	..	97·90
1887	..	..	..	..	..	88·00
1888	..	..	..	..	..	131·50
1889	..	..	..	..	..	244·50
1890	..	..	..	..	..	193·75
1891	..	..	..	..	..	122·00
1892	..	..	..	..	..	101·80
1893	..	..	..	..	..	115·90
1894	..	..	..	..	..	136·60
1895	..	..	..	..	..	169·00
1896	..	..	..	..	..	180·60*
Last quotation, February 24, 1898						191·00

* In 1897 went up to 195 to 196 per cent.

Production of coal :—

Year.						Quantity.
						Tons of 1,000 kilos.
1897	..	..	..	..	..	890,198
1888	..	..	..	..	..	1,452,048
1889	..	..	..	..	..	1,466,521
1890	..	..	..	..	..	1,531,922
1891	..	..	..	..	..	1,660,194
1892	..	..	..	..	..	1,602,685
1893	..	..	..	..	..	1,679,782
1894	..	..	..	..	..	1,877,237
1895	..	..	..	..	..	1,900,849
1896	..	..	..	..	..	2,109,024

CONSOLIDATION Mining Company, Limited.

Fee-simple coalfield property, 1,947 acres. Share capital, 800,000*l*. Profits divided, 1889, as private company, 5½ per cent., as limited company, 1890-96 :—

Year.						Per Cent.
1890	..	..	..	..	..	21
1891	..	..	..	..	..	20
1892	..	..	..	..	..	12
1893	..	..	..	..	..	8
1894	..	..	..	..	..	8
1895	..	..	..	..	..	12
1896	..	..	..	..	..	15

Quotation of shares on market, 1889-96 :—

Year.						Per Cent.
1889	..	..	..	..	..	223 ·00
1890	..	..	..	..	..	191 ·50
1891	..	..	..	..	..	153 ·50
1892	..	..	..	..	..	140 ·00
1893	..	..	..	..	..	163 ·10
1894	..	..	..	..	..	173 ·80
1895	..	..	..	..	..	204 ·00
1896	..	..	..	..	..	248 ·75
Last quotation, February 24, 1898						262 ·75

Production of coal :—

Year.						Quantity.
						Tons of 1,000 kilos.
1890	..	..	..	..	..	949,264
1891	..	..	..	..	..	1,040,578
1892	..	..	..	..	..	1,037,912
1893	..	..	..	..	..	1,050,722
1894	..	..	..	..	..	1,075,168
1895	..	..	..	..	..	1,096,109
1896	..	..	..	..	..	1,174,106

GELSENKIRCHENER Mining Company, Limited.

This company now owns and works the following large collieries, which have been acquired by purchase :—Rhein-Elbe and Alma, Vereinigte Stein und Hardenberg, Erin, Hansa, Zollern, Germania, Monopol, and has lately purchased Westhausen, at, I believe, a cost of 200,000*l*., besides being interested as shareholders in various others.

Fee-simple coalfield property of company, 6,235 acres. According to "Saling's Börsen-Papiere, 1897-98":—Share capital, 40,000,000 marks (2,000,000*l.*). Mortgage bonds, 12,000,000 marks (600,000*l.*). Divided profits, 1873-96:—

Year.						Per Cent.
1873	..	..	..	..	..	23
1874	..	..	..	..	..	17
1875	..	..	..	..	..	10
1876	..	..	..	..	..	7½
1877	..	..	..	..	..	5½
1878	..	..	..	..	..	6
1879	..	..	..	..	..	6
1880	..	..	..	..	..	7
1881	..	..	..	..	..	7½
1882	..	..	..	..	..	7
1883	..	..	..	..	..	7
1884	..	..	..	..	..	6
1885	..	..	..	..	..	6
1886	..	..	..	..	..	5½
1887	..	..	..	..	..	5½
1888	..	..	..	..	..	6
1889	..	..	..	..	..	7
1890	..	..	..	..	..	12
1891	..	..	..	..	..	12
1892	..	..	..	..	..	9
1893	..	..	..	..	..	6
1894	..	..	..	..	..	6
1895	..	..	..	..	..	7
1896	..	..	..	..	..	7½

Quotation of shares, 1873-96:—

Year.						Per Cent.
1873	..	..	..	..	..	143·00
1874	..	..	..	..	..	137·25
1875	..	..	..	..	..	116·00
1876	..	..	..	..	..	104·90
1877	..	..	..	..	..	85·00
1878	..	..	..	..	..	89·00
1879	..	..	..	..	..	139·50
1880	..	..	..	..	..	122·00
1881	..	..	..	..	..	135·00
1882	..	..	..	..	..	123·40
1883	..	..	..	..	..	122·90
1884	..	..	..	..	..	117·00
1885	..	..	..	..	..	112·50
1886	..	..	..	..	..	111·75
1887	..	..	..	..	..	111·00
1888	..	..	..	..	..	134·40
1889	..	..	..	..	..	219·50
1890	..	..	..	..	..	176·50
1891	..	..	..	..	..	133·25
1892	..	..	..	..	..	127·10
1893	..	..	..	..	..	145·50
1894	..	..	..	..	..	167·00
1895	..	..	..	..	..	171·00
1896	..	..	..	..	..	170·90
Last quotation, February 24, 1898						177·90

Coal production :—

Year.						Quantity.
						Tons of 1,000 kilos.
1892	..	..	..	..	..	3,141,406
1893	..	..	..	..	..	3,191,008
1894	..	..	..	..	..	3,238,680
1895	..	..	..	..	..	3,244,896
1896	..	..	..	..	..	3,561,850

The collieries of this company have various classes of coal, including gas, long-flame, steam, hard and soft, and coking coal, having extensive batteries of coke ovens winning by-products, they have gasworks, brick manufactories, and electric light plant at most of their collieries. Originally, the Rhein-Elbe and Alma collieries belonged to a French company, therefore all the above collieries have been purchased by the Gelsenkirchener Mining Company.

According to the following published table the income of this company per month was :—

Month.	1896.	1897.	1896.	1895.	1894.
	Marks.	Marks.	Marks.	Marks.	Marks.
January	690,603	525,031	512,982	387,009	354,098
February	...	514,287	422,750	370,400	291,000
March	...	560,224	414,364	402,712	314,618
April	...	541,503	375,718	357,851	212,000
May	...	620,359	396,509	398,700	289,000
June	...	618,580	467,825	356,500	329,500
July	...	606,317	443,617	447,104	268,000
August	...	600,420	435,555	466,720	340,406
September	...	600,508	500,362	402,287	369,000
October	...	566,319	523,920	481,211	417,890
November	...	557,018	564,289	517,345	393,500
December	...	1,062,815	744,509	670,607	519,981
Total	...	7,393,339	5,792,378	5,245,437	4,098,992

**GELSENKIRCHENER Mining Company, Limited. Names and
Production of Collieries belonging thereto.**

	1891.	1892.	1893.	1894.	1895.	1896.
REHM, ELBE, AND ALMA.						
Production of coal	Tons. 917,990	Tons. 937,664	Tons. 930,766	Tons. 908,576	Tons. 918,267	Tons. 980,118
Cost of production per ton ...	Marks. 6·23	Marks. 5·96	Marks. 5·84	Marks. 5·96	Marks. 5·96	Marks. 5·92
STERN AND HARDENBERG.						
Production of coal	Tons. 510,063	Tons. 504,865	Tons. 523,866	Tons. 540,130	Tons. 564,539	Tons. 587,347
Cost of production per ton ...	Marks. 4·98	Marks. 4·71	Marks. 4·42	Marks. 4·51	Marks. 4·08	Marks. 4·38
ERIN.						
Production of coal	Tons. 490,878	Tons. 437,152	Tons. 446,737	Tons. 441,440	Tons. 433,151	Tons. 460,047
„ coke	140,910	138,284	130,173	132,215	128,823	122,005
Cost of production per ton ...	Marks. 6·21	Marks. 5·94	Marks. 5·38	Marks. 5·25	Marks. 5·12	Marks. 5·17
HANNA.						
Production of coal	Tons. 153,012	Tons. 193,338	Tons. 206,638	Tons. 215,550	Tons. 215,993	Tons. 197,600
„ coke	...	...	...	...	33,326	66,567
Cost of production per ton ...	Marks. 6·17	Marks. 5·77	Marks. 5·06	Marks. 5·55	Marks. 5·95	Marks. 6·68
ZOLLERN.						
Production of coal	Tons. 215,429	Tons. 273,076	Tons. 294,660	Tons. 304,352	Tons. 284,577	Tons. 315,085
„ coke	...	...	...	31,175	57,778	54,259
Cost of production per ton ...	Marks. 6·49	Marks. 5·81	Marks. 5·07	Marks. 5·83	Marks. 5·71	Marks. 5·48
GERMANIA.						
Production of coal	Tons. 545,459	Tons. 514,416	Tons. 525,775	Tons. 569,236	Tons. 531,730	Tons. 594,241
„ coke	...	133,067	129,454	166,541	164,718	167,497
Cost of production per ton ...	Marks. 5·91	Marks. 5·89	Marks. 5·48	Marks. 5·37	Marks. 5·20	Marks. 5·24
Dividends paid	Per cent. 12	Per cent. 9	Per cent. 6	Per cent. 6	Per cent. 7	Per cent. 7½

HARPENER Mining Company, Limited.

Names of Collieries belonging thereto :—Heinrich Gustav, Neu Iserlohn, Vollmund Amalia, Hofesaat, Wehrhahn, Selinde, Rosenbaum, Hæckelmei, Schildwacht, Caroline, Prinz von Preussen, Neumound, Harpen, Sirius, Klotkamp, Heinrich Gustav, von der Heydt, Julia, Bibiana, Recklinghausen I–VII, Emscher, Gneisenau, Preussen, Hugo, Bertha, Neuhorst Hugo.

Year.	Production.			Selling Price.			Cost of Production Per Ton.	Dividends Paid.
	Coal.	Coke.	Dead Fine Coal Briquettes.	Coals.	Coke.	Dead Fine Coal Briquettes.		
1890-91	Tons. 2,824,429	Tons. 531,339	Tons. 33,775	Marks. 9·90	Marks. 14·20	Marks. 13·66	Marks. 6·25	Per cent. 20
1891-92	2,860,434	613,523	43,753	9·77	11·17	12·17	5·67	10
1892-93	2,934,062	606,334	51,535	7·88	9·10	10·20	5·62	5
1893-94	2,930,110	616,575	50,786	7·43	8·17	8·97	5·70	3
1894-95	3,003,350	686,139	47,771	7·89	8·37	9·64	5·80	5
1895-96	3,349,170*	722,206	51,172	8·18	9·31	9·64	..	6

* Not including Gneisenau.

HIBERNIA Mining Company, Limited.

Names of collieries belonging thereto:—Hibernia, Shamrock I-IV, Wilhelmine Victoria I-III.

Year.	Production.					Dividends Paid.
	Coal.	Coke.	Tar.	Hydrosulph. Ammonia.	Bricks.	
	Tons.	Tons.	Tons.	Tons.		Per Cent.
1890 ...	1,531,922	74,676	...	...	...	19
1891 ...	1,660,194	87,078	783	346	3,787,000	12
1892 ...	1,602,686	131,424	906	295	3,657,000	5½
1893 ...	1,679,782	141,278	742	339	3,664,500	4
1894 ...	1,877,238	201,780	748	366	3,668,000	5½
1895 ...	1,900,849	211,682	1,377	569	3,740,000	7½
1896 ...	2,109,024	225,634	6,581	2,472	3,935,500	9½
1897 ...	2,292,362 '96	278,997 '91	6,628	...	...	12

GERMANY and the Grand Duchy of Luxemburg.

BITUMINOUS COAL.

Year.	Number of Places of Work—			Average all Hands Employed.	Production.	
	Without Production.	With Production.	Auxiliary Works.		Quantity in tons of 1,000 Kilos.	Value in 1,000 Marks.
1886 ...	14	436	2	217,581	58,056·6	300,728
1887 ...	12	419	2	217,367	60,334·0	311,077
1888 ...	13	409	...	225,452	65,386·1	341,063
1889 ...	12	394	...	239,954	67,342·2	385,080
1890 ...	17	408	...	262,476	70,237·8	538,044
1891 ...	23	401	...	283,227	73,715·7	539,518
1892 ...	16	407	...	289,415	71,372·2	526,979
1893 ...	17	398	...	290,632	73,852·3	498,395
1894 ...	13	333	...	299,627	76,741·1	509,100
1895 ...	10	319	...	303,937	79,169·3	538,896

LIGNITE BROWN COAL.

Year.	Number of Places of Work—			Average all Hands Employed.	Production.	
	Without Production.	With Production.	Auxiliary Works.		Quantity in Tons of 1,000 Kilos.	Value in 1,000 Marks.
1886 ...	13	625	...	29,668	15,626·0	40,222
1887 ...	14	611	...	29,408	15,898·6	40,201
1888 ...	18	605	...	29,630	16,574·0	40,896
1889 ...	15	605	...	31,140	17,631·0	41,349
1890 ...	24	604	...	33,161	19,063·0	49,789
1891 ...	27	600	...	35,682	20,536·6	54,166
1892 ...	22	599	...	37,450	21,171·9	58,506
1893 ...	16	539	...	36,536	21,673·8	55,023
1894 ...	22	564	...	35,620	22,064·6	53,152
1895 ...	19	549	...	37,476	24,788·4	58,011

**PRODUCTION and Values of Coal in the Dortmund, in comparison
with other German Coal Districts.**

States.	Production of Collieries, in the Years—					
	1896.		1895.		1894.	
	Amount in 1,000 Tons.	Value in 1,000 Marks.	Amount in 1,000 Tons.	Value in 1,000 Marks.	Amount in 1,000 Tons.	Value in 1,000 Marks.
Prussia—						
District of Breslau ...	23,679	136,306	21,944	126,090	20,891	119,855
" Halle ...	8	58	9	75	7	64
" Klauenthal ...	572	4,706	549	4,568	539	4,445
" Dortmund ...	44,883	304,005	41,146	273,933	40,613	258,847
" Bonn ...	9,835	85,977	8,974	74,888	8,504	70,861
Kingdom of Prussia ...	78,987	531,051	72,622	479,554	70,644	454,072
Bavaria ...	989	9,084	973	8,577	871	8,251
Saxony ...	4,486	43,191	4,430	40,928	4,123	37,744
Elsass Lothringen ...	1,028	8,360	990	8,087	970	7,803
Other German States ...	150	1,389	149	1,380	133	1,230
German Empire ...	85,640	593,065	79,164	538,924	76,741	509,100

PRODUCTION, SALE, VALUE OF PRODUCTION, and Number of Workmen Employed in the Dortmund District.

Year.	Number of Mines.	Production of Coal.	Value of Production.	Sale.	Value of Sale.	Value of Sale.	Number of Workmen.
		Tons.	Marks.	Tons.	Marks.	£	
1860	..	4,490,046	27,246,450	..	..	..	23,463
1870	..	11,570,556	67,969,089	..	..	..	50,457
1880	202	22,495,204	102,953,856	21,179,972	96,981,971	4,849,098	80,152
1889	167	33,865,110	184,971,273	32,208,383	176,008,852	8,900,442	112,073
1890	177	35,469,200	282,441,997	33,740,286	266,209,892	13,460,484	123,994
1891	175	37,402,494	312,779,832	35,466,949	296,593,957	14,829,697	134,603
1892	176	36,853,502	271,663,689	36,826,218	271,455,195	13,572,759	138,231
1893	166	38,613,146	247,553,922	38,692,425	248,062,190	12,403,109	142,285
1894	161	40,613,073	258,847,307	40,567,024	238,539,343	12,926,967	148,280
1895	159	41,145,744	273,938,459	41,167,468	274,175,837	13,708,766	150,212
1896	162	44,893,804	303,934,817	44,888,918	..	..	157,137
1897	168*	48,423,987	..	..	..	..	185,636†

* Number of mines has, in point of fact, increased. The number of companies has been reduced through amalgamation.

† Number of men is according to the fourth quarter of 1897.

N.B.—The production increased in the year 1897, as compared to that of 1896, by 3,530,683 tons, or 7.86 per cent.

It is to be remarked with regard to the following table, in connection with the production of coal from the industrial countries of the world, that Germany, together with Great Britain and the United States of America, represents about 80 per cent.; France, 5 per cent.; and Belgium, 4 per cent. :—

				Quantity in 1,000 Tons (Ton of 1,000 Kilos.).				
Year.				Great Britain.	United States of America.	Germany.	France.	Belgium.
1892..	..	..	..	184,697	145,200	71,362	25,697	19,583
1893..	..	..	..	166,955	146,070	73,909	25,173	19,411
1894..	..	..	..	191,290	154,897	76,741	26,964	20,535
1895..	..	..	..	192,687	174,550	79,164	27,801	20,448
1896..	..	..	..	195,352	175,363	85,640	28,870	21,213

The following table shows the consumption per head of population in Great Britain and in Germany :—

Year.					Great Britain.	Germany.
					Kilos.	Kilos.
1875	..	..	..	..	3,567	1,128
1880	..	..	..	..	3,611	1,279
1885	..	..	..	..	3,875	1,532
1890	..	..	..	..	3,908	1,836
1891	..	..	..	..	3,908	1,933
1892	..	..	..	..	3,797	1,877
1893	..	..	..	..	3,353	1,907
1894	..	..	..	..	3,814	1,955
1895	..	..	..	..	3,810	2,025

It is to be remarked with reference to the above that in Germany the consumption of lignite coal is included, and that in Great Britain the greatest consumption was in the years 1890–91, whereas in Germany an almost continuous increase of consumption is to be noted. The consumption in Germany, which in 1875 was not even a third of that of Great Britain, has risen now to more than half that of the latter country. Whilst these figures give a clear proof of the power of development of German industry, they will serve as a means of setting the minds of those at rest who fear that increasing production will flood the market with industrial products.

N.B.—The above notes and figures are taken from report of Mining Institute, Essen on Ruhr.

Years.

1871

HAMBURG Coal Trade.

Year.					Quantity in Tons of 1,000 Kilos.	
					Imports from Westphalia.	Imports from England (about).
1880	..	..	..	..	338,910	1,025,550
1881	..	..	..	..	452,650	1,001,118
1882	..	..	..	..	475,890	1,013,334
1883	..	..	..	..	513,420	1,050,000
1884	..	..	..	..	548,730	1,025,500
1885	..	..	..	..	536,510	1,138,700
1886	..	..	..	..	518,930	1,210,000
1887	..	..	..	..	548,500	1,230,000
1888	..	..	..	..	627,890	1,365,000
1889	..	..	..	..	716,780	1,580,000
1890	..	..	..	..	815,820	1,581,700
1891	..	..	..	..	833,750	1,874,500
1892	..	..	..	..	908,185	1,615,000
1893	..	..	..	..	1,003,591.5	1,596,138
1894	..	..	..	..	1,191,878	1,659,913
1895	..	..	..	..	1,298,269	1,684,376
1896	..	..	..	..	1,410,809	1,796,776

It will be seen from the above how Westphalia is gaining ground against English competition, inasmuch as, whilst England still has the lead, in 16 years the imports from Westphalia have increased by over 300 per cent., those of England have increased by only about 76 per cent. As Westphalia ought to be able to deliver a better quality fresh from the railway trucks, it is in Hamburg purely and simply a question of freight, sea against land transport, under which England has been enabled to hold her own and gain some ground, as Westphalia can with ease supply the entire demand of the Hamburg market.

AVERAGE Price of Coal in the Dortmund District, According to Report of "Bergbauverein."

Year.	Per Ton of 1,000 Kilograms.					
	Long Flame Coal.	Steam and Coking Coal.	Meagre Coal.	Gas Coal.	Foundry Cokes.	High Furnace Cokes.
	Marks.	Marks.	Marks.	Marks.	Marks.	Marks.
1887 ..	5.72	5.63	4.88	7.10	8.67	7.83
1888 ..	6.32	6.04	5.80	7.52	10.36	9.16
1889 ..	9.26	8.47	8.26	11.04	17.00	15.72
1890 ..	12.36	10.72	11.00	13.47	22.00	19.78
1891 ..	11.02	9.86	9.78	12.91	17.00	13.50
1892 ..	9.75	8.50	7.75	11.75	14.68	12.00
1893 ..	7.58	7.29	7.50	9.79	14.00	11.00
1894 ..	8.70	8.00	7.50	10.60	14.00	11.00
1895 ..	8.33	8.00	7.50	10.125	14.00	11.00
1896 ..	8.08	8.25	7.67	10.17	14.23	12.02
1897 (January to April)* ..	8.50 to 9.75	8.50 to 9.13	7.75 to 8.63	..	15.38 to 15.88	13.63
1898 (February 18) ..	10.00 11.00	8.50 9.50	9.00 11.00	10.00 to 11.00	16.00 16.50	14.00
						11.00 to 13.00

* According to prices published by local exchange.

BITUMINOUS COAL.

Year.		Prices per Ton of 1,000 Kilograms.									
		German.					English.				
		Breslau (Price at Pit's Mouth).		Dortmund (Price at Pit's Mouth).*		Saarbrücken (Unscreened in Truck at Pit).		Hamburg (f.o.b.).			
		Lower Silesian, Large and Small.		Upper Silesian, Gas, Large.		Large, for Export.		Puddling and Good Steam Coal.		Long Flame.	
		Marks.	Marks.	Marks.	Marks.	Marks.	Marks.	Marks.	Marks.	Marks.	Marks.
1887 ..	..	9·9	5·9	6·3	4·4	7·6	7·3	12·7	12·0	West Hartley, Steam.	Sunderland, Nut.
1888 ..	..	9·8	5·9	6·4	5·5	7·6	7·4	13·1	12·4		
1889 ..	..	10·9	7·0	9·3	7·4	8·1	8·3	15·8	16·0		
1890 ..	..	13·4	9·5	12·9	9·9	10·7	10·9	18·3	18·6		
1891 ..	..	12·8	9·2	11·5	8·0	10·4	10·3	17·1	17·9		
1892 ..	..	12·7	9·1	9·2	7·3	10·4	9·5	16·1	15·7		
1893 ..	..	12·6	9·0	8·2	6·5	9·9	8·5	15·2	16·3		
1894 ..	..	12·6	9·0	9·0	6·9	9·7	8·2	15·1	14·9		
1895 ..	..	12·6	9·0	9·0	7·4	9·6	8·3	13·4	13·9		
1896 ..	..	12·6	8·9	9·0	7·9	9·4	8·4	12·7	13·2		

* Railway freights, 4s. 6d. to 5s. per ton, Dortmund district to Hamburg.

COAL and Pig-Iron in the Customs Union of Germany.

BITUMINOUS and Lignite Coal.

Year.	Production.	Import.	Export.	Consumption in the Customs District.	
				Together.	Per Head of Population.
	Tons of 1,000 kilos.	Tons of 1,000 kilos.	Tons of 1,000 kilos.	Tons of 1,000 kilos.	Kilos.
1876-80... ..	52,177,799	4,689,242	5,896,054	50,980,987	1,169
1881-85... ..	68,630,136	5,488,345	8,349,079	65,764,402	1,445
1886-90... ..	81,227,870	8,617,233	8,994,811	80,850,792	1,686
1891... ..	94,252,278	11,838,412	9,553,659	96,537,031	1,932
1892... ..	92,844,060	11,138,292	8,989,637	94,692,705	1,876
1893... ..	95,426,153	11,369,720	9,700,061	97,095,812	1,905
1894... ..	98,805,702	11,674,133	9,759,479	100,720,356	1,954
1895... ..	103,957,639	12,298,406	10,379,652	105,876,393	2,028

PIG-IRON.

Year.	Production.	Import.	Export.	Consumption in the Customs District.	
				Together.	Per Head of Population.
	Tons of 1,000 kilos.	Tons of 1,000 kilos.	Tons of 1,000 kilos.	Tons of 1,000 kilos.	Kilos.
1876-80... ..	2,165,911	447,395	362,514	2,250,792	51.6
1881-85... ..	3,391,718	264,041	290,492	3,378,267	74.2
1886-90... ..	4,201,362	263,058	219,166	4,245,254	88.6
1891... ..	4,630,982	250,016	170,280	4,710,748	94.3
1892... ..	4,927,713	215,725	177,768	4,965,670	98.4
1893... ..	4,976,368	227,176	171,629	5,031,915	98.7
1894... ..	5,370,031	211,848	232,370	5,349,509	103.8
1895... ..	5,464,724	199,556	220,103	5,434,177	104.1

PIG-IRON.

Year.	Prices per Ton of 1,000 Kilograms.									
	German.					English.				
	Breslau.		Dortmund.		Düsseldorf.		Berlin (Free on Quay).			
	Puddling.	Foundry.	Bessemer.	Westphalian Puddling.	Best Puddling.	German Foundry.	Scotch, No. 1	English, No. 3 Middlesbrough.		
	Marks.	Marks.	Marks.	Marks.	Marks.	Marks.	Marks.	Marks.		
1887 ..	49·5	54·2	49·0	46·6	46·7	54·9	71·2	57·0		
1888 ..	52·0	58·0	52·7	50·5	50·9	57·4	70·5	56·3		
1889 ..	58·5	65·0	65·9	64·5	65·3	70·8	76·4	66·3		
1890 ..	66·6	74·4	79·8	70·0	77·5	83·6	102·0	71·8		
1891 ..	48·2	54·8	62·1	52·1	52·8	71·2	81·0	61·5		
1892 ..	48·9	52·6	57·8	50·5	51·4	65·5	72·0	58·7		
1893 ..	50·2	52·5	52·0	46·7	46·3	62·0	74·5	55·0		
1894 ..	49·3	50·3	52·0	45·6	45·3	62·8	76·2	55·7		
1895 ..	48·3	49·2	52·0	47·0	44·7	63·7	72·9	55·5		
1896 ..	57·9	57·5	59·0	52·4	54·4	65·3	72·7	58·0		

AVERAGE Prices of Iron per Ton and Mark at Works for the last Ten Years, according to the Report of the
Chamber of Commerce at Dortmund.

Year.	German Foundry Iron.		III.	English Foundry Iron at Franco-Buhrort.	Luxemburg Foundry Iron at Luxemburg.	Westphalian Bar Iron.	Plate (Normal Prices).			Westphalian.			
	I.	Marks.					Boiler.	Seconds.	Fine.	Bessemer Raw Iron.	Puddling Iron.	Spiegel Iron.	Thomas Iron.
			Marks.	Marks.	Marks.	Marks.							
1886	51 to 53	46 to 47	20 to 30	49 to 50	96 to 98	136 to 140	127 to 131	129 to 135	42-88	41-04	47 to 49	...	
1887	55-50	49-00	35-70	53-50	114-00	148-00	135-40	138-00	48-96	46-63	51-00	...	
1888	58-33	52-00	38-22	56-12	125-87	187-60	147-60	152-32	52-71	50-46	55-38	...	
1889	72-41	63-77	45-66	62-76	148-36	200-45	178-64	190-23	65-92	64-54	78-36	54-79	
1890	80-45	67-23	44-84	67-64	168-76	228-67	200-42	232-90	79-84	70-00	79-15	60-36	
1891	71-20	60-00	39-64	60-50	188-90	176-00	152-60	139-50	62-08	62-08	68-18	49-50	
1892	63-38	56-62	38-30	57-90	118-04	161-25	140-83	180-00	57-98	50-67	64-93	49-33	
1893	62-00	53-83	34-31	54-08	112-17	...	...	...	52-00	46-71	49-61	45-54	
1894	63-75	53-75	34-93	56-00	98-76 to 102-25	148-38	122-22	116-72	52-00	45-68	51-84	45-17	
1895	63-67	54-67	36-57	66-00	96-25 to 104-83	152-60	124-17	121-67 to 128-89	52-00	47-00	52-83	45-63	
1896	66-42	57-50	44-80	66-50	123-76	171-66	132-60	142-08 to 146-26	...	53-92 to 54-25	61-00	56-58	
1897	...	...	...	...	...	...	...	...	...	...	...	...	
January	67-00	60-00	...	60-00	130 to 135	177-60	137-60	136 to 140	63-00	56-00	68-00	56-90	
February	67-00	60-00	...	60-00	180 to 135	180-00	142-30	136 to 140	63-00	56-00	68-00	56-90	
March	67-00	60-00	...	60-00	130 to 135	180-00	142-90	136 to 140	63-00	56-00	68-00	56-90	

GERMAN Customs Union—Exports and Imports of Coal and Coke
for the Year 1895.

IMPORTS.

Imports from—	Class of Coal.		
	Bituminous Coal.	Coke.	Lignite Coal.
	Tons of 1,000 kilos.	Tons of 1,000 kilos.	Tons of 1,000 kilos.
Free port Hamburg	..	26,630	..
Belgium.. ..	507,533	259,848	..
Denmark	..	..	..
France	20,874	..	..
Great Britain	4,307,462	52,312	..
Italy	..	..	..
Netherlands	73,336	..	..
Norway	..	..	..
Austria and Hungary ..	560,855	25,369	7,637,489
Russia	..	..	..
Sweden	..	..	..
Switzerland	..	..	..
Spain	..	..	..
Mexico	..	..	..
Australia	..	..	..
Other countries	6,693	29,722	14
Total	5,476,753	393,881	7,637,503
Value (round numbers) ..	Marks. 67,912,000	Marks. 5,751,000	Marks. 42,006,000
Total in previous year ..	Tons. 5,117,356	Tons. 461,779	Tons. 7,181,050
Value (round numbers) ..	Marks. 63,967,000	Marks. 6,729,000	Marks. 39,496,000

EXPORTS.

Exports to—	Class of Coal.		
	Bituminous Coal.	Coke.	Lignite Coal.
	Tons of 1,000 kilos.	Tons of 1,000 kilos.	Tons of 1,000 kilos.
Free port Hamburg	163,072	5,380	..
Belgium.. ..	929,649	231,702	..
Denmark	16,044	13,436	..
France	629,561	866,698	..
Great Britain	25,151	..	..
Italy	16,415	24,388	..
Netherlands	3,525,560	137,599	..
Norway	..	12,150	..
Austria and Hungary	6,136,668	535,725	14,864
Russia	259,805	194,253	..
Sweden	17,043	23,946	..
Switzerland	838,292	80,468	..
Spain	..	..	..
Chile	8,351	..	..
Australia	..	43,492	..
Other countries	29,201	44,153	901
Total	11,598,757	2,216,395	15,765
Value (round numbers) ..	Marks. 119,467,000	Marks. 34,354,000	Marks. 86,000
Total in previous year ..	Tons. 10,360,838	Tons. 2,293,328	Tons. 18,814
Value (round numbers) ..	Marks. 107,753,000	Marks. 36,005,000	Marks. 103,000

HIGH FURNACE WORKS in Germany including Grand Duchy of Luxemburg.

Statistics of Numbers of Works, Furnaces, Production, and Values.

Year.	In High Furnace Work.	Number of High Furnaces.		Duration of Work of the Furnaces.	Average Number of Hands Employed.	Quantity of Raw Material dealt with in 1,000 Tons.	Pig-iron Produced.			
		Total.					Foundry Pig.		Pig for Manufacture of Puddling Iron.	
							Quantity in 1,000 Tons.	Value in 1,000 Marks.	Quantity in 1,000 Tons.	Value in 1,000 Marks.
1886	..	285	215	Weeks. 9,445	21,470	10,470·2	399·7	17,402	1,494·4	61,289
1887	..	271	212	10,011	21,432	12,057·4	489·1	22,499	1,732·5	71,432
1888	..	271	211	10,103	23,046	12,952·0	597·9	27,858	1,794·8	78,787
1889	..	264	213	10,436	23,985	13,452·3	610·9	32,843	1,966·4	92,115
1890	..	268	222	10,490	24,846	14,065·9	619·0	39,086	2,135·8	120,355
1891	..	270	218	10,822	24,773	13,804·4	703·0	40,350	2,337·2	114,086
1892	..	266	216	10,103	24,325	14,421·5	712·1	37,446	2,689·9	119,966
1893	..	263	204	9,747	24,201	14,259·7	739·7	36,563	2,831·6	118,612
1894	..	253	208	9,878	24,110	15,158·9	840·1	40,147	3,160·8	132,898
1895	..	263	212	9,929	24,059	15,421·4	855·8	40,565	3,373·2	143,238

High Furnace Works in Germany including Grand Duchy of Luxemburg—continued.
 Statistics of Production and Values—continued.

Year.	Pig-iron Produced.						Total Production of Raw Iron.	
	Pig for Malleable Iron.		Cast-iron, First Smelting.		Scrap.			
	Quantity in 1,000 Tons.	Value in 1,000 Marks.	Quantity in 1,000 Tons.	Value in 1,000 Marks.	Quantity in 1,000 Tons.	Value in 1,000 Marks.	Quantity in 1,000 Tons.	Value in 1,000 Marks.
1886 ..	1,590·8	58,834	30·2	4,032	13·6	709	3,528·7	142,266
1887 ..	1,756·1	68,023	31·4	3,825	14·9	664	4,024·0	166,443
1888 ..	1,898·1	80,100	30·4	3,842	15·9	738	5,387·1	191,820
1889 ..	1,905·3	87,976	29·3	3,756	13·7	682	4,524·6	217,371
1890 ..	1,863·9	103,844	32·8	3,880	8·0	415	4,658·5	267,580
1891 ..	1,553·8	73,100	37·0	4,362	10·2	580	4,641·2	232,428
1892 ..	1,491·6	67,661	34·2	3,741	9·7	482	4,937·6	229,296
1893 ..	1,370·3	57,081	34·7	3,607	9·7	463	4,966·0	216,326
1894 ..	1,334·6	54,415	34·5	3,653	10·0	457	5,380·0	231,570
1895 ..	1,194·0	49,514	31·7	3,226	9·8	409	5,464·5	236,952

RHINE Shipping Transport of Coal, from Rhenish Westphalian District.

The Amount of Coal Dispatched was Distributed as follows—	Quantities in Tons of 1,000 Kilos.					
	From Ruhrort.		From Duisburg.		From Hochfeld.	
	1896.	1895.	1896.	1895.	1896.	1895.
To Cologne and Coblenz, excl.	83,697	77,633	50,593	41,357	2,950	8,780
Coblenz	13,135	6,835	6,282	8,613		
Mayence, excl.	100,832	60,479	52,178	43,118		
Harbours of Main ...	243,374	137,773	341,126	251,595		
Mayence and Mannheim, excl. ...	684,978	481,830	175,312	119,635	605,843	447,835
Mayence and further up stream	1,506,459	1,163,342	836,028	522,594		
Emmerich	24,682	25,346	1,473	1,232	21,010	16,574
Holland	1,264,829	1,250,263	176,688	177,246	4,050	13,900
Russia	...	...	1,100	3,850	...	...
England	...	...	...	...	4,853	...
Sweden	...	...	...	...	1,950	...
Belgium	320,047	267,578	69,008	33,200	700	...
Total	4,231,933	3,471,074	1,709,183	1,202,340	641,356	486,989

Plant at the "Preussen" Colliery.

At the "Preussen" colliery of the Harpener Mining Company, Limited, Dortmund, advantage has been taken of all the latest experience gained in mining operations. A description of the overground plant will be of interest, as illustrating the development attained in Westphalian coal-mining, and the way in which endeavours are made to overcome the difficulties of the ever-increasing depth in the northern part of the district, from which the coal has to be extracted and water pumped. In consequence of these difficulties the cost of production increases from year to year, necessitating the works being so laid out as to provide for the largest possible amount of production over which to divide general expenses. A main point is economy in manual labour, and consumption of fuel in the production of motive power, through the adoption of the most suitable mechanical appliances of the day.

Mr. Kurt Seebohm, M.E., on coal mining in Westphalia.

Mode of dealing with great depths.

The small coal, which formerly in the absence of suitable coal washing apparatus was little thought of, except for boiler stoking, has now, under increased demand for coke, gained a new value.

Increased value of small coal.

On the other hand, through the process of extracting by-products in coke making, a much smaller amount of steam generating heat is left available from the coke ovens.

With these objects in view Herr Tomson, director of the colliery "Preussen," in designing the works decided in favour of—

Principles laid down by the managing director.

1. The application of steam at a high pressure.
2. The centralisation of motor power.
3. The avoidance of interruption in the motion of the winding engines as far as practical.

The high-pressed steam of 12 atmospheres is obtained by the Boilers.

combination of two classes of boilers working in conjunction. Two corrugated fire tube boilers 4 metres long are laid end on in connection with a water tube boiler. As the gases of the former on entering the latter have a temperature of only 550° to 600° C., the pipes of the latter do not suffer any injury from over heat. The water chambers of the fore boilers are connected by a pipe, and the steam chambers are connected with each other, and with the aft boilers. The twin boilers have two separate water chambers, each fed for itself, and a total heating surface of $164\cdot3$ square metres, of which the fore ones have 19, the aft $145\cdot3$ square metres. They have together a capacity for water of 19 and for steam of $4\cdot8$ cubic metres. On trial 1 kilo. of coal with 13 per cent. ash converted $9\cdot05$ kilo. water of 0 degrees temperature into steam.

Steam
engines.

For the centralization of steam-power engines an engine-house of 38 by 29 metres is provided, affording space for four engines each of 500 horse-power, of which as yet only two are erected.

The main driving engine, built in the "Sächs-Maschinen-Fabrik" in Chemnitz, is a compound one, with a maximum of 670 effective horse-power. The diameter of the high pressure cylinder is 710 millims., that of the low pressure 1,050 millims.; the stroke 1,250 millims., with 50 revolutions per minute. The transmission of power is effected by hemp ropes, of 50 millims. in diameter from the fly-wheel to the main shafting, from which are driven the ventilation fans, electric power and lighting dynamos, the coal screening and washing apparatus, and, if necessary, the air compressors.

The compressor is worked direct off the piston rod of a second engine, with which the fan is usually driven, by means of transmission shaftings. Provision is made for the connection of these two shaftings by means of clutches, so that in case of accident to one the other driving engine can do the work.

Air
compressors.

The compressor is constructed by "Schüchtermann and Krämer," of Dortmund, on Riedlers patent, as "Verbunds" compressor, and can press 105 cubic metres of fresh air up to 8 atmospheres per minute. The air is pressed first in low pressure cylinders up to $2\frac{1}{2}$ atmospheres, and having passed over surface coolers, is then driven up to a pressure of 8 atmospheres in the high pressure cylinder; the former has 1,250 millims., the latter 600 millims. diameter.

Use to which
compressed
air is applied.

The compressed air is used in the pit for the driving of small underground fans, and for engines, boring machines, and on the surface in the workshops for smiths' hammers, &c.

Dynamos.

The dynamo on the "Dringhafen" system yields a current of 600 volts pressure, and serves as driver to four electro motors for the engines in the workshops.

Up and down
cast shafts.

Of the two shafts which were bored on the "Kind Chaudron" system, and are walled out with cast-iron tubing, the one serves as down the other as up-cast in ventilation of the mine. A fan, system "Rateau," is attached to the latter shaft, one which of

late years has been adopted with satisfactory results in many collieries. The fan has 24 wings of sheet steel, and is 3·4 metres in diameter, can supply 6,000 cubic metres of air with 250 millims. depression. By the application of smaller or larger sheaves the effective ventilating power of the fan can be regulated. At bank the up-cast shaft is closed by the "Schultze Briart" apparatus, and below the lowest floor of the cages there is a second air trap, so that loss of ventilation power by down draft of fresh air is minimised, even in case of the cage being hoisted above the heapstead level.

Shaft 1 serves for coal winding purposes only, as an auxiliary, the winding engines having ordinary rope drums.

At shaft 2 a new system has been adopted; although the Winding main working level is only 500 metres below bank, the winding engine. engine is so constructed as to be efficient for winding eight-tub cages from a depth of 1,000 metres.

Conical drums were adopted as the most suitable means of Counter-balancing the great rope weights. The system of con- balancing necting the cages underneath by a rope passing under a pulley dead wei. hts. below the deepest working level, has, according to experience, not proved successful, and the "bobbin," in consequence of the friction on the ropes, has involved too much wear and tear. The saving with the iron wire ropes in contradistinction to the aloë flat ropes under the same conditions is estimated at 1,500*l.* per annum. The conical drums run into great width, in shafts of Winding great depth, and consequently unfavourable angles to the shaft drums. pulley, and a very long and necessarily heavy drum shaft results therefrom. This was avoided in the following way:—

The winding engine, German patent No. 70,599, has two drums Vertical cylinders placed one before the other on separate shafts. The connection cylinders placed above the drum. between the piston and drum-shaft cranks is effected by a special system of piston rods and levers. The vertical cylinders stand on a girder bridge above the drums, whereas in the case of the English vertical lever winding engine, the drums stand at a high level above the cylinders on strong masonry pillars. The chief object at Preussen would appear to be to avoid such heavy masonry.

The engine is of the compound order, constructed for 12 atmosphere steam pressure, the cylinders being respectively in diameter 820 millims. and 1,150 millims., with a stroke of 2,600 millims. The rope drums have a diameter of 6 and 10 metres, with a breadth of 2,800 millims. In order to change the tubs rapidly, and thus get the greatest effect out of the winding engine, hydraulic stage-lifts, German Patent No. 82,718, Tub stage-lifts. are attached to the heapstead and at the hanging on; of these tub-lifts, two are at each end. When the loaded cage reaches bank the full tubs are driven out by the empties simultaneously. The rails in the tub-lifts have such gradients that upon the opening of the clips the tubs move automatically; whilst the winding Clips. cages are running in the shaft the full tubs are moved from the stage lifts. The weight of these when thus loaded lifts by

balance, with aid of hydraulics, the opposite stage lifts loaded with empties, the stages are raised and lowered by hydraulic power, the full tubs run down an incline to the kick-up platform, whence an endless chain takes them on an ascending gradient to a higher point, so that they run by their own weight back to the shaft.

Proposed
pumping
plant.

When pumping plant becomes a necessity it is to be laid down either according to the system "Kaselowsky" or Timmermann's patent. A pumping plant of the former system has been working satisfactorily over two years at "Pluto" Colliery near Wanne, the construction being as follows:—

Pumping
system at
Pluto colliery.

There is at bank a twin steam engine with cylinders of 870 millims. diameter and 1,080 millims. stroke, by which four rams, each of 80 millims. in diameter, are worked. These rams are supplied by water mixed with vaseline oil, forcing it into an accumulator up to a pressure of 200 atmospheres, from this the water is led through pipes of 65 millims. inner diameter, having a metal thickness of 10 millims., to the hydraulic pumping engine, standing at a depth of 505 metres below bank. This is a double-action twin engine without revolving parts. The driving gear is so constructed that in the water column there is no pause in motion, whereby, notwithstanding 250 atmospheres pressure all blows are completely avoided. The motor pressure water is forced back to the reservoir at bank, through pipes of 75 millims. diameter. The rising main pipes have a diameter of 109 millims. The hydraulic pumping engine forces 2.5 cubic metres per minute to bank, from 505 metres depth.

Pumping
plant at
Gneisenau
colliery.

The pumping plant at "Gneisenau" Colliery near Dortmund consists of two systems, with alternative action heavy wooden spears and one rising main pipe in common to both. The lower lifting pumps of 630 millims. diameter deliver the water from a shaft depth of 390 to 326 metres; at this higher level there are two ram pumps with plungers of 614 millims. diameter which force the water up to 163 metres level, where two analogous engines drive it to bank.

The pumping spears are worked direct by two vertical water-power cylinders with rams of 430 millims. diameter, the pressure water is forced at 100 atmospheres under the accumulator by four rams of 97 millims. diameter, and 1,200 millims. stroke. The driving steam-engine is a compound one, with cylinders of respectively 750 and 1,250 millims. in diameter, having a stroke in common of 1,200 millims., making 45 revolutions in a minute. These pumps can deliver to bank 12 cubic metres per minute from a depth of 400 metres.

Pitmen's
bath at
"Preussen."

The dressing, washing, and bath rooms, called in the German language "Kaue," are in accordance with the newest requirements. The dressing room for 1,500 pitmen is divided into eight apartments, from each of which the men pass into the douche and bath room, which are separated from the dressing room so that the rising vapours cannot penetrate into it. The latter room is provided with shed roofs, in order to afford an ample

supply of light and space for hanging up clothes; these are hoisted on cords up to the roof for airing; there is a hook for each suit marked with a token number coinciding with that of the man's. The men going to work pass through the lamp cabin, where they receive their lamps in exchange for their number, and go on to the heapstead by a covered staircase.

Coke Ovens and By-products System and Production.

The advantage of the coke ovens with the extraction of the by-products has induced many mine-owners in the "Oberbergamtsbezirk," Mining Board District of Dortmund, to build such so-called "tar ovens."

The advantages consist in :—

1. The larger output with the same good quality of coke, as the air is securely cut off during the coking.
2. The much larger production of coke in each oven in the same time, because it is possible to put in more fine coal, and to convert it into coke in a shorter time by the constant heating by gas from the outside.
3. The extraction of the valuable by-products, such as ammonia, tar, benzol.

It is true the expenses of building and working are higher, and the heat of the gases introduced to the furnace of the boilers is less, for which the above-named advantages more than compensate.

The old round coke ovens are being abandoned more and more, as the expenses in repair are too high and the output is too small—20 to 25 per cent. less than in the new ovens; and it is rather difficult to draw the coke out of them. There are still such round ovens at the "Shamrock" colliery near Herne, but these are also arranged for the extraction of by-products. Of course the coke produced in the tar ovens has not the same brilliant silver glitter as that of the round oven; its colour is darker without the gloss. It depends upon the carbon separated from the carbonic distillation products. But it does not seem to be right to judge from merely the outward appearance as to quality.

Advantages of the new system over the old beehive oven.

Then the Westphalian coke, produced in "Coppée" or "Otto-Hofmann" ovens, is thought to have the same chemical or physical quality as the coke produced in round ovens. Besides, a good deal of carbon is lost in cooling the coke in the round ovens, as the steam divides :—

C_2 and $2H_2O - CH_4$ and CO_2 (vide Simmerbach) Frankland (Percy, vol. 1) found in the gases produced by Derbyshire coke and steam : $H + CH_4$, 56.9; CO_2 , 19.3; CO , 13.8.

In consequence of this, the number of round ovens in the "Oberbergamtsbezirk," Mining Board District of Dortmund, fell during the period 1885 to 1895 from 762 to 142. In the same time the number of all coke ovens increased from 6,404 to

8,063. The number of coke ovens with by-product systems increased in the same 10 years from 306 to 1,864 (see Diagram 11., facing p. 35).

Statistics as to
production
of coke.

The production of these ovens is about 1,860,000 tons yearly. This increase of 508 per cent. is the best proof of the well-known importance of this part of the coke industry.

The production of coke at all mines in the "Oberbergamtsbezirk," Dortmund, since the initiation of the Westphalian Coal Syndicate is as follows (see also Diagram I., facing p. 35):—

Year.	Quantity.	Percentage.	
		Decrease.	Increase.
	Tons.*		
1885	2,826,697	..	..
1886	2,557,018	11	..
1887	3,142,922	..	23
1888	3,592,990	..	14
1889	3,813,027	..	6
1890	4,187,780	..	9.8
1891	4,388,010	..	4.77
1892	4,560,984	..	4
1893	4,780,489	..	4.8
1894	5,398,612	..	12.9
1895	5,562,508	..	3
1896	6,265,338	..	12.63

* 1 ton = 2,205 lbs.

The production of coke by the largest colliery companies was, in the year 1896:—

	Quantity.
	Tons.
Harpener Bergbau-Gesellschaft	771,082
Gelsenkirchener Bergwerks-Gesellschaft	405,562
Hibernia	350,646

Class of by-product ovens
in use.

Most of the new ovens are built according to the system of Dr. Otto Hofmann. There were 1,262 such ovens in the "Oberbergamtsbezirk" of Dortmund in the year 1895. Each oven works separately for itself, though the gases in the partition walls heat neighbouring ovens jointly. These ovens have double channels underneath the floor. The air is drawn into the regenerators by fans. The temperature of the gas forced into the ovens is only 30° C. The valves are changed every half-hour.

At Constantin
colliery.

The ovens of the new plant at "Constantin III" colliery, near Bochum, are 10 metres (32.8 feet) long, 1,800 millims. (5.9 feet) high, and 530 millims. (1.74 feet) wide on an average.

The loading of dry coal is 6,550 kilos., say a little over $6\frac{1}{2}$ tons; the time for coking is 30 hours, and the production per oven and day is 4 tons, or in the year 1,440 tons per oven.

The output of coke is 79 per cent.

At the "Eintracht Tiefbau" colliery, near Steele, the ovens ^{At} are not quite so wide, having on the average a width of 450 millims. "Eintracht" Tiefbau.

The coal contains 16 per cent. of gas, and needs only 24 to 26 hours for coking. The production of each oven is also 4 tons per day. The output is 78 per cent. of marketable coke.

"Tar ovens," without regenerator furnace, are built by Sémét-Solvay, Brussels; Dr. Brunck, Dortmund; and Ruppert, Essen.

The Solvay ovens at the Phoenix high furnace works in ^{Ovens at the Phoenix works.} Ruhrort are 9 metres (29·5 feet) long, 1,700 millims. (5·6 feet) high, and 370 millims. (1·2 feet) broad. They have horizontal channels in the walls, and the loss of heat by radiation is small, as the partition walls and the spandrel are very thick. The production of coke in these ovens is 1,100 to 1,200 tons in the year. They coke at a high temperature, the coking time being very short. They are very useful for an inferior quality of coking coal.

In Ruhrort good coking coal is mixed with 23 or 27 per cent. ^{Mixture of coking coal.} of dry coal by a new mixing apparatus of Schüchtermann and Cremer, of Dortmund. The two kinds of coal are let down out of the hoppers by shoots on to two rotary tables and drawn off in the due proportion by knives, the coal is mixed by a disintegrator. The ovens with horizontal channels do not seem to be approved in consequence of much difficulty in building.

The ovens of Dr. Brunck (German Patent, 73,504) have also ^{Dr. Brunck's} thick partition walls. By this construction the "heating walls" ^{ovens.} are relieved, and they can be reduced in strength.

This is a great advantage with regard to intensive heating. The ovens are 2 metres (6·5 feet) high, 10 metres (32·8 feet) long, 480 millims. (1·6 feet) broad on an average. The breadth depends upon the quality of the coal. The flues in the walls are vertical. By this construction the gas has to travel only a short distance at a more equalised velocity, which is of the greatest importance in the extraction of by-products. 60 such ovens are built at the "Zollverein" colliery, near Caterberg, in the last year.

The "Ruppert's" oven (German Patent, 78,927) shows ^{The Ruppert} a new burning apparatus between every two ovens. In each ^{ovens.} of these the gas is introduced from the outside, and the four gas burners heat the side walls. Under this system the injurious effect of a difference of quality in coke next the door and that in the centre of the oven is avoided. But these ovens need a good deal more gas than those of "Otto-Hofmann," therefore the regenerator furnace system, though it is more expensive, is thought better than the recuperative system.

Dr. Otto and Co., experimental batteries.

Dr. Otto and Co. have built, for experimental purposes, batteries of coke ovens in Dahlhausen to try under what conditions it is possible to do away with the regenerators. It is of the greatest importance to profit by the high heating power of the gases. They have to be introduced into the ovens in such a way as to secure the most rational and perfect combustion, so that the coke is coked in a very high temperature. We know, by the inquiries of Schilling in Munich, and Knoblauch in Cologne, that the production of ammonia depends a good deal on the temperature; and Dr. Hilgenstock in Dahlhausen says, that the temperature of the gas after extraction of the by-products is 40 per cent. less than it was in the old ovens. The production of the ammonia is very important. Mr. Wehler said in May, 1897, at the meeting of the German engineers (vide "Glückauf," No. 37) that only 0.22 per cent. of all the nitrogen combined in the coal—c. 1.5 per cent.—is produced as ammonia. 0.22 per cent. of 1 ton are 2.2 kilos. nitrogen, which amounts to 11 kilos. ammonia per ton coal. If every day 250 tons of coal are coked 2,750 kilos. of ammonia are produced or 82,500 kilos. per month at a value of 13,000 to 14,000 marks.

Coke sold by Westphalian Coke Syndicate.

The way gas is dealt with.

In the year 1896 the sale of coke by the Rhenish-Westphalian Coke Syndicate was 7,000,000 tons. In addition, 30,000 tons of ammonia, at a value of 5,000,000 marks, were also sold.

In coking, 280 to 300 cubic metres of gas escape per ton of coal according to quality. As the ovens are closed hermetically the gases ascend through pipes in the retort. There is a stop-valve in the pipe which is closed when the coking process is complete, so that the passage of air into the retort is excluded whilst the oven doors are open and the coke is being pressed out by mechanical means. The gases are exhausted by a fan, and go at first through the refrigerators ("Luft-kühler"); in them a good deal of ammonia water and tar is deposited, and the temperature of the gas falls about 600–700 degrees in the pipes down to perhaps 120° C.; in which the coke dust is also deposited. The gases are then passed into vertical iron cylinders at a higher level, in the bottom of which are 88 pipes of 100 millims., through which cold water flows down, the gas ascending around, which is cooled down to 17° or 18° C. Passing the fans the gas is pressed into the so-called "Glocken-wäscher." In these cylinders are punched horizontal iron plates in a distance of 100 millims. apart. Ammonia water dropping down takes away all ammonia from the ascending gas. The same water is used again and again till it has 3½° Beaumé. Then it is good for the fabrication of ammonia. The gas, leaving this apparatus, is led through pipes into the benzol manufactory. The benzol is absorbed by washing the gas in heavy tar oils and is gained by distillation. The gas yields perhaps 0.6 per cent. benzol, and is passed from the benzol manufactory into the gasometer, and is pressed by it into the furnace of the ovens.

Winning of ammonia.

The ammonia water is run into the same tank as the tar. The tar being specifically heavier is deposited. The quantity obtained is 2 to 3 per cent. of the weight of coal.

The ammonia water is pumped into the "Feldmann" apparatus. The combination of ammonia and water is decomposed by lime water, and the ammonia is pressed by steam of 1 atmosphere into leaden boilers; these are filled with sulphuric acid (41° Beaumé). The ammonia is bound to hydrosulphate of ammonia. It is crystallised, ladled out, dried, and sold as a good fertiliser. The time occupied in the production of the hydrosulphate of ammonia depends upon the quality of the coal. In coking, the so-called "Fett-Kohlen," i.e., best quality for the purpose in the district, 12 to 19 hours; if dry coal is used 20 to 40 hours. Some of the best coal seams of this class in the district have bands of shale or stone, and in order to procure a clean coke most of the fine screened coal is washed.

60 coke ovens produce in a month, according to the quality of the coal:—160 to 180 tons of tar; 40 to 100 tons of hydro-sulphate of ammonia. By-products won.

The selling price of the by-products was in the last 10 years as follows:—

Year.	Per Ton.		
	Tar.	Ammonia.	Benzol.
	Marks.	Marks.	Marks.
1885	45	240	75
1886	25	230	40
1887	15	232	65
1888	21	240	65
1889	35	240	70
1890	36	240	63
1891	39	230	63
1892	39	220	45
1893	29	200	39
1894	27	270	31
1895	27	200	25

APPENDIX.

QUOTATIONS on the Düsseldorf Bourse on October 21, 1897.

I. PRIVATE COMPANIES. Mines worked on Cost-Book System.

Name of Colliery.	Nearest Connected Railway Station.	Participating Figures in Syndicate.		Yearly Production.		Prices per Share.			Quotation of Shares.	
		1897.	1896.	1896.	1895.	1896.	1895.	1894.	Offers for Purchase.	Offers for Sale.
		Tons.	Tons.	Tons.	Tons.	Marks.	Marks.	Marks.	Marks.	Marks.
Alte Haase ..	Sprockhövel ..	..	..	66,749	44,541	..	..	..	..	1,080
Altendorf Tiefbau ..	Dahlhausen ..	240,000	240,000	157,801	193,408	..	..	..	..	650
Becker Mulde ..	Dahlhausen ..	180,000	180,000	161,280	141,904	..	..	..	..	2,800
Berneck ..	Weitmar ..	..	..	83,286	91,326	..	..	..	..	..
ver. Bickfeld Tiefbau ..	Aplerbeck ..	155,000	155,000	95,781	128,202	..	..	..	..	1,250
Blankenburg ..	Blankenstein ..	135,000	135,000	115,253	105,980	100	100	110	..	2,600
ver. Bommerbäcker Tiefbau ..	Bommern ..	150,000	150,000	136,187	145,370	180	120	120	..	..
Borussia ..	Lüttgendortmund ..	194,760	194,760	167,834	151,556	..	..	..	..	1,900
Caroline ..	Holzwickede ..	120,000	120,000	88,674	92,960	150	..	..	..	..
ver. Carolinenglück ..	Präsident ..	261,216	261,216	228,687	150,122	..	..	..	..	7,500
..	Ueckendorf ..	..	..	..	..	..	..	..	..	..
..	Wattenscheid ..	..	..	..	..	..	..	..	..	..
..	B. Borbeck ..	233,999	233,999	231,193	208,292	325	230	30	..	5,250
..	Wattenscheid ..	876,424	763,301	696,086	673,984	850	500	180	22,900	..

I. PRIVATE COMPANIES. Mines worked on Cost-Book System—continued.

DÜSSELDORF.

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Name of Colliery.	Nearest Connected Railway Station.	Participating Figures in Syndicate.		Yearly Production.		Profits per Share.			Quotation of .. Shares.	
		1897.	1898.	1898.	1898.	1898.	1898.	1898.	Offers for Purchase.	Offers for Sale.
		Tons.	Tons.	Tons.	Tons.	Marks.	Marks.	Marks.	Marks.	Marks.
ver. Charlotte ..	Ueberruhr ..	120,000	120,000	108,923	94,647	50	..	..	..	786
Constantin der Grosse ..	{ Reimke .. Bochum Rh. ..	604,504	494,504	592,318	476,858	260	260	..	..	11,000
Orone ..	Hörde B.-M. ..	204,000	204,000	170,720	94,647	..	..	..	..	1,500
v. Dahlhauser Tiefbau ..	Dahlhausen ..	104,596	104,596	51,548	81,816	..	..	..	..	7,850
Deutschland ..	Hidinghausen ..	180,500	76,250	78,715	58,914	..	..	..	..	3,925
Dorstfeld ..	Dortmunderfeld ..	450,000	866,176	343,492	288,751	..	..	..	..	4,750
Kilberg ..	Steele B.-M. ..	203,196	203,196	222,840	219,740	230	200	160	..	19,400
Kintrecht Tiefbau ..	Steele B.-M. ..	450,000	450,000	413,348	401,861	765	720	720	..	2,800
Ewald ..	Bruch ..	532,988	532,988	522,475	433,464	144	..	..	..	1,750
v. Franziska Tiefbau ..	Witten B.-M. ..	120,000	120,000	111,638	106,604	75	45	50	..	..
Freie Vogel & Unverhofft ..	Hoerde ..	..	..	108,679	..	..	..	..	9,350	..
Friedricher Nachbar ..	Dahlhaus. B.-M. ..	..	..	447,625	406,160	440	240	..	7,700	7,800
Friedrich der Grosse ..	Herne ..	598,977	438,977	406,817	372,321	450	825	..	..	12,900
Fröhl. Morgensonne ..	{ Ueckendorf .. Wattenscheid ..	431,264	431,264	380,692	325,036	50	..	..	..	2,850
General Blumenthal ..	Recklinghaus ..	466,500	456,500	107,078	89,450	170	..	..	..	35,750
Gotteseegen ..	Löttringhaus ..	123,408	123,408	916,599	842,778	2,000	1,400	1,200	..	7,700
Graf Bismarck ..	Bismarck ..	979,688	979,688	641,660	404,942	490	860	76	..	6,775
Graf Moltke ..	Gladbeck ..	418,894	295,494	253,845	250,726	180	..	..	..	7,675
Graf Schwerin ..	Merkinde ..	..	..	..	..	..	..	..	7,600	..
Hagenbeck ..	..	..	..	..	..	..	..	..	..	..

I. PRIVATE COMPANIES. Mines worked on Cost-Book System--continued.

Name of Colliery.	Nearest Connected Railway Station.	Participating Figures in Syndicate.		Yearly Production.		Profits per Share.			Quotation of Shares.	
		1897.	1898.	Tons.	Tons.	1898.	1895.	1894.	Offers for Purchase.	Marks.
ver. Hamburg ..	Annen ..	..	..	..	545,138	386	..	..	..	3,600
ver. Hannibal ..	{ Herne .. Bochum .. Hofstede-Rienke ..	..	..	..	298,593	270	150	100	..	5,900
Heinrich ..	Kupferdreh ..	120,000	120,000	113,705	100,889	190	160	130	..	3,450
Helene Amalie ..	{ A. B. Borbeek Alteneesen .. Altendorf Rh. ..	686,125	686,125	607,876	515,291	800	550	450	13,100	13,250
Hercules ..	Essen B.-M. ...	300,000	300,000	270,437	235,080	160	70	..	..	3,700
Herzkamp. Mald.	Schee. ...	90,000	55,080	..	48,717	..	..	..	..	3,500
Humboldt. ..	Heilsen Rh. ...	180,000	142,500	155,156	146,846	200	155	85	..	..
Joh. Deimelberg ..	Steele B.-M. ...	240,000	213,000	224,972	219,709	180	150	100	..	4,250
Julius Philipp ..	Lær ..	302,702	302,702	236,745	182,081	..	..	..	..	3,000
Kaiser Friedrich ..	Barop ..	240,000	120,000	125,882	105,610	120	..	120	..	4,900
Königin Elisabeth	{ Alteneesen .. Kray ..	480,000	480,000	451,428	432,994	500	450	450	..	11,650
König Ludwig ..	Bruch Rh. ...	592,000	472,000	453,563	420,291	200	80	..	9,600	..
Langenbrahm ..	Rüttenscheid ..	..	..	233,413	230,932	575	350	300	10,000	..
Lothringen ..	Merklinde ..	357,125	237,125	273,812	236,088	..	..	240	..	8,650
Mont Cenis ..	Herne K.-M. ..	..	..	255,912	256,650	..	..	..	..	6,350
V. Pörlingsiepen ..	Kupferdreh ..	..	..	131,155	131,267	120	120	120	..	3,300

QUOTATIONS ON

Name of Firm.	Domicile of Company.	Collieries respectively	Quotation on the Bourse.*	
			Shares of Share.	Offers of Sale.
Alstaden, Act.-Ges. f. Bergbau ...	Alstaden ...	Alstaden Schacht I. Schacht II.	—	—
Aplerbecker Act.-Ver. f. Bergh. ...	Dortmund ...	Margaretha.	—	—
Arenberg'sche Act.-Gesellsch. für Bergbau und Hüttenbau.	Essen ...	Prosper I. Prosper II.	—	—
Bochumer Bergw.-Act.-Ges. ...	Bochum ...	ver. Präsident. Schacht I. Schacht II.	—	—
ver. Bonifacius ...	Kray ...	ver. Bonifacius.	—	—
Cölnener Bergwerksverein ...	Cöln ...	Carl. Anna. Emscher Schacht.	—	—
Consolidation, Bergw.-A.-G. ...	Schalko i./W. ...	Schacht I. " II. " III.	—	—
Dahlbusch, Bergw.-Gesellsch. ...	Düsseldorf ...	Dahlbusch I-V.	—	—
Dannenbaum, Bergw.-A.-Ges. ...	Laer ...	Dannenbaum I u. II. Friederica I. " II. Prinz-Regent.	—	—
Dortm. Steinkohlenbergwerk Louise Tiefbau.	Dortmund ...	Louise und Erbstollen. Schacht I u. II. Clausthal. Schulte. Witwe. Bruchstrasse.	—	—
Gelsenkitchener Bergw.-A.-G. ...	Ueckendorf b. Gel- senkirchen.	Erin. Germania I u. II. Rhein Elbe & Alma. v. Stein & Hardenberg. Hansa. Zollern.	—	—
Harpener Bergbau-Actien-Ges. ...	Dortmund ...	Heinrich Gustav. Caroline. Amalie. Prinz v. Preussen. Neu-Iserlohn. Vollmond. von der Heydt. Julia. Recklinghaus I. II.	—	—

I. PRIVATE COMPANIES. Mines worked on Cost-Book System—continued.

DÜSSELDORF.

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Name of Colliery.	Nearest Connected Railway Station.	Participating Figures in Syndicate.		Yearly Production.		Profits per Share.			Quotation of Shares.	
		1897.	1896.	1896.	1896.	1896.	1896.	1894.	Offers for Purchase.	Offers for Sale.
		Tons.	Tons.	Tons.	Tons.	Marks.	Marks.	Marks.	Marks.	Marks.
Ringeltaube ..	Annen ..	..	..	188,372	155,000	60	..	60	..	..
Roland ..	Oberhausen ..	..	..	127,559	102,824	..	..	..	..	1,550
v. Rosenblumendelle ..	Heisen ..	120,000	120,000	..	167,414	106	35	40	1,000	1,150
Radolph ..	Rienke ..	..	..	..	331,723	..	..	..	..	11,750
Schlägel & Eisen ..	Reetlinghaus ..	508,763	508,763	376,609	149,994	..	30	..	..	1,875
v. Schürbank & Charlottenburg ..	Aplerbeck ..	165,000	165,000	156,681	193,467	60	..	..	..	3,100
Siebenplaneten ..	Langendreer ..	278,582	278,582	239,862	110,185	..	..	..	..	900
Steingatt ..	Altend. (Ruhr) ..	141,376	141,376	91,308	..	..	45	35	..	..
Stock & Schierenberg ..	Haselingshaus ..	53,550	53,550	38,705	34,100	..	..	..	..	2,375
ver. Trappe ..	{ Silschede .. } { Haspe B.-M. .. }	135,000	135,000	126,694	116,385	150	110	90	..	..
Tremonia ..	Dortmunderfeld ..	294,981	244,891	204,751	183,541	105	12½	2½	2,000	..
Unser Fritz ..	Wanne ..	525,000	484,852	493,089	485,088	800	800	575	..	14,100
Victor ..	Castrop ..	500,688	500,688	565,542	466,942	280	..	340	..	..
Victoria ..	Kupferdreh ..	..	90,000	54,160	15,548	..	..	..	3,825	..
Westhausen ..	Bodelschwing ..	..	..	157,319	142,102	..	..	..	..	..
Westfalia ..	{ Dortmund .. } { Eving .. }	..	..	559,545	429,232	400	..	..	..	10,150
ver. Wierche ..	Heisen ..	195,000	195,000	128,472	151,401	..	..	..	3,800	..
v. Wiendahlbank ..	Annen ..	..	..	135,862	114,189	..	..	..	..	..

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DIPLOMATIC AND CONSULAR REPORTS.

GERMANY.

MEMORANDUM ON

GERMAN TRADE IN THE FIRST QUARTERS OF 1897 AND 1898.

*Presented to both Houses of Parliament by Command of Her Majesty,
JUNE, 1898.*

LONDON:
PRINTED FOR HER MAJESTY'S STATIONERY OFFICE,
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1898.

[C. 8649—32.]

Price One Halfpenny.

Memorandum on German Trade in the First Quarters of 1897 and 1898 by Mr. Harriss Gastrell, Commercial Attaché to Her Majesty's Embassy at Berlin.

(Received at Foreign Office, May 16, 1898.)

The following comparison of trade for the first quarters of 1897 and 1898 has been made in the "National Zeitung" of the 13th instant. And I would point out that for these two years the statistics given are perfectly comparable, which is not the case with figures for 1896, as both are subsequent to the change made in German statistics on January 1, 1897, when a certain portion of the "improvement traffic" was for the first time included in "special trade" statistics.

The foreign trade of Germany in the first quarter of this year shows an improved exportation, and, in this respect, surpasses the trade of her two rivals, England and France. In the first quarter of 1898 English exports showed a diminution of about 1,600,000*l.* as compared with the same period of 1897; France, in the same way, showed a decrease of 625,000*l.* But the export trade of the German Empire in the first quarter of 1898 was larger than that of the same period of 1897 by 3,664,500*l.*, although Germany, equally with other nations, was suffering from the effects of the new United States' tariff.

The exportation of German sugar, however, in the first quarter of this year showed a decrease of 650,000*l.*, due entirely to the cessation of exportation to the United States. The quantities exported to that country in the two quarters of last and of this year, for raw and loaf sugar, were 88,541 and 2,737 tons respectively. Compensation seems to have been found for German trade, however, in an extension of markets, especially in the East Indies, and, secondly, in the British colonies. It will be sufficient to mention here the great increase in exports of German iron this year. To the East Indies the increase was 8,700 tons; to England and the Netherlands, who perform a part of the over-sea carrying trade for Germany, the improvement was 31,000 tons; to China and Japan the rise was one of 5,000 tons.

The recently published official figures give the following results as a whole:—

For—	Quantity.	
	1897.	1898.
	Tons.	Tons.
Imports	7,858,000	8,771,000
Exports	6,070,000	6,889,000

In both directions there was, therefore, an advance which covered almost all classes of goods. Cotton, corn, silk, wool, and raw materials of all kinds showed increased imports; and the exports of these manufactured materials, except in the case of woollen fabrics, also showed increases in exports.

As regards values, the importation of goods and agricultural products was, without including specie, 55,585,650*l.* in 1897, and 60,912,600*l.* in 1898. Similarly, for exports, the figures were 41,357,800*l.* in 1897, and 45,022,300*l.* in 1898. The values for the present year are calculated only on the prices of last year. These figures will, therefore, be modified when the values for this year are used. The price of corn, for instance, has greatly risen lately.

The chief articles which show increased imports are :—

Articles.	Value.	
	1897.	1898.
	£	£
Cotton and cotton goods ..	5,083,200	5,852,250
Iron and ironware	662,600	796,800
Hides and skins	2,001,800	2,154,750
Wood	2,604,800	3,395,800
Silk	1,779,850	1,978,400
Corn	8,285,900	8,446,400

Of imported raw cotton the increase was about 1,050,000*l.*, whereas imported cotton fabrics decreased by about 290,000*l.* The increase in imported wool and woollen goods was 565,000*l.* Imports of cattle were, in 1897, 1,943,800*l.*, and, in 1898, 2,021,300*l.*

The movement in grains was as follows :—

Imports.	Value.	
	1897.	1898.
	£	£
Wheat	1,746,400	1,766,650
Rye	680,550	703,350
Oats	498,150	469,750
Barley	1,359,350	1,396,250
Maize	974,000	1,132,700

The increase, therefore, was not very much greater.
By quantity the figures were—

					Quantity.	
					1897.	1898.
					Tons.	Tons.
Wheat	..	..	..	..	237,124	239,872
Rye	..	..	..	..	145,259	150,123
Barley	..	..	..	..	239,744	244,488

It is well to mention here the exports of wheat and rye because these have much increased during this year, and have aroused great discussion as to the reason of this increased exportation. It is supposed that the Law on Produce Exchanges, which stopped "gambling in futures," has had this effect, namely, that the price in the world's markets of wheat and rye stands higher than in Germany itself, whereby the exportation is encouraged. In March of 1897 and 1898 the exports were:—

					Quantity.	
					1897.	1898.
					Tons.	Tons.
Wheat	..	..	..	..	4,814	18,243
Rye	..	..	..	..	4,171	11,326
Total	..	..	..	..	8,985	29,569

And the imports were—

					Quantity.	
					1897.	1898.
					Tons.	Tons.
Wheat	..	..	..	..	65,505	52,777
Rye	..	..	..	..	65,106	45,269
Total	..	..	..	..	130,611	98,046

The exports, in the first quarter of both years, were—

					Quantity.	
					1897.	1898.
					Tons.	Tons.
Wheat	..	..	..	..	11,607	53,511
Rye	..	..	..	..	9,015	29,709

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GERMANY.

MEMORANDUM ON

GERMAN IMPORTS AND EXPORTS OF
“IRON AND IRONWARE” AND “IMPLE-
MENTS, MACHINES,” IN 1896 AND 1897.

*Presented to both Houses of Parliament by Command of Her Majesty,
JUNE, 1898.*

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1898.

[C. 8649—33.]

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*Report on the Commercial High School at Leipzig, by Mr. Gastrell,
Commercial Attaché to Her Majesty's Embassy at Berlin.*

(Received at Foreign Office, June 20, 1898.)

On April 25, 1898, there was opened at Leipzig the first Commercial High School ("Handelshochschule") in Germany, which seems to be a kind of commercial university or college, where higher and finishing studies on commercial subjects may be obtained. Its object is to form the coping-stone to commercial education as a whole, in the same way as the university completes an ordinary general education.

Opening of
Leipzig
Commercial
High School,
April, 1898.

This new Commercial High School is an instance of German foresight in grasping future necessities, and in providing betimes the means of supplying them. Its effect will, undoubtedly, be to bring German education in commercial matters, which is already extremely high, to a higher level than ever before, and enable the German people to carry out commercial enterprise in the future even more successfully than they have done in the past. In the consolidation of the Empire as a powerful, industrial, and commercial state, this high school is bound to play a prominent part, and will, no doubt, in the course of years develop to dimensions not dreamt of now.

Effect on
commercial
education.

As a whole the educational scheme it has in view is thoroughly practical, and was thought out and planned by men having had practical experience in such questions, and especially by Professor Hermann Raydt, the present Director of the Commercial High School and for years head of the great Commercial School of Leipzig. In June, 1897, the Second Congress of Commercial Education met at Leipzig, and they were largely in favour of such an educational scheme, after having thoroughly gone into the question as to whether it was desirable to create commercial high schools or "commercial academies."

Commercial
High School
organised by
Professor
Raydt and
others.

Leipzig was finally decided upon as the site of the first Commercial High School, inasmuch as it offered many advantages to the student; and, amongst others, the possibility of, at the same time, attending lectures at the already famous ordinary University of Leipzig. The town too is a bright and attractive one, where many foreigners reside for educational purposes, and

students can obtain board and lodging in the houses of residents at moderate rates.

Funds of school; no special building for.

So far the High Commercial School has no separate building, and, I understand, no separate professors and teachers of its own. Those employed in this new special work are the men already lecturing and teaching either in the ordinary University or in the already existing Commercial School at Leipzig, and they get extra fees for the new work. The whole scheme is worked very economically and only costs 8,000 marks or 400*l.* per annum at present. But it is expected that it will not now be long, seeing its already prosperous state, before funds will be granted for a permanent and separate building.

The present income of 400*l.* (8,000 marks) has been raised without any help whatever from the Imperial Government of Germany. It consists of two parts; firstly, of 250*l.* (5,000 marks) a year guaranteed by the Chamber of Commerce of Leipzig, and, secondly, of 150*l.* per annum guaranteed by the Saxon Government.

Importance of this Commercial School to Englishmen.

It is of great importance that Englishmen should take advantage of the openings offered by this new Commercial High School at Leipzig. Among its students at the present moment there is not one of British nationality. In a conversation with Professor H. Raydt, Director of this Commercial High School, he expressed himself most desirous of receiving Englishmen, and that they would be very welcome. He was especially interested in England and Englishmen, for some years ago he visited officially the chief public schools in England and made a special study of the athletic side of school-life there, and he was largely instrumental in introducing games into German schools.

It is also to be observed that the diplomas and other certificates that the Board of Examiners will issue, on the termination of the course of study, will probably become of great value to all persons engaging in commercial work of any kind, and are likely to confer great advantages on those persons holding them in any part of the world where they may obtain employment.

Application for admittance to.

The next term begins on October 3 next, so that early application for admittance should be made. The advantages of this High School are many to those foreigners who avail themselves of the advantages it now offers; and any young man desirous of joining should apply for admission in writing to Professor H. Raydt, Handelshochschule, Lohrstrasse 3, Leipzig.

Exemption from military service and commercial education.

A short account of the work of the High School is now given, and it may be mentioned here that the fact of having passed through its courses and obtaining a certificate does not give any privileges as regards military service, as is the case when a man has passed through the Commercial School. In the latter case he has only one year to serve in the army instead of the two to two-and-a-half years. This exemption has, undoubtedly, been largely instrumental in accounting for the very large number of young men who pass through these schools, for, by so doing, they reduce army service to one year and gain an education which thoroughly fits them for all and any kinds of commercial life.

The time when the students at the High Commercial School are intended to take up the course of study there offered is not immediately subsequent to that of the ordinary Commercial School. The intention is that after passing through this latter school a boy should serve two years as an apprentice ("Lehrling"), and then one year as a clerk (i.e., three years of practical work), before taking up the higher course.

Training required previous to attending Commercial High School for Germans.

The Commercial High School has already (May, 1898) had a far greater success than was ever foreseen. It was only expected to have about 50 students at most, whereas there are now already 95, and 18 others who attend lectures. Many applications are being daily received for admission. By October 3, when the next term begins, it is expected that there will be a very much larger number of men studying there.

Number and class of students.

The first enrolment of students took place on April 20, 22, and 28, and on May 5 and 12. Their total number is composed as follows:—Of 20 teachers, 41 traders, and 13 pupils from the "Gymnasien" (11 German and two foreigners); two from the "Realgymnasien"; two from the "Oberrealschulen"; 10 from the "Higher Commercial Schools"; two students and two technical men ("Techniker"); and one apothecary and two officers. Of the 95, 75 are Germans and 20 are foreigners; but not one of these is English. Their ages vary from 18 to 46, the majority being, of course, young men of 19 to 22. There were, however, seven between the ages of 30 and 41. The 18 others who attend the lectures are men studying at the Leipzig University and merchants residing in that town.

Enrolment of names is effected, after an interview with the "Director of Studies," by inscription in the register, by which an undertaking is given to observe the laws of the Commercial High School and to be under the control of its Senate.

Control of students.

A plan of the general studies is given as Annex 1 on page 10.

Plan of studies in summer of 1898. Other special courses in languages.

Besides the subjects there given, there are the following other special courses which can be made use of by the students.

TABLE of Special Courses of Study in Languages.

Number.	Language and Class.	Duration of Number of Hours Weekly.	Duration of Number of Terms (of Half-Years, "Semester").
1	French commercial correspondence..	2	2
2	English commercial correspondence..	2	2
3	French for beginners.. ..	3	4
4	English for beginners	3	4
5	Italian for beginners	2	4
6	Spanish for beginners	2	4
7	Russian for beginners	3	4
8	German for foreigners	3	2

There are also special courses for shorthand (Gabelsberger system) to which two hours are given weekly, and the course lasts two half-years ("Semester"). There is also a practical course in the use of the type-writer.

The cost of a general and average number of subjects amounts to about 100 marks, or 5*l.*, for the half-year ("Semester"), or to 200 marks, or 10*l.*, for the whole year.

The object of the Commercial High School is to offer to young men who are already in trade or who are about to enter it, as also to teachers of commercial subjects, a two years' course of study and a wide general and commercial education. It is intended to give them both a theoretical and practical technical education to complete and supplement their other general education.

Another object is to afford both old and young people in trade and in other occupations the opportunity of increasing their commercial knowledge in special branches.

For this reason those who attend the high school are divided into two categories, firstly, the students ("die Studierenden"), and, secondly, the "lecture visitors" ("Hörer"). It is to this second category that the persons mentioned in the last paragraph belong.

It is also considered probable that in the course of time other

Cost of lectures, &c.,

Objects of High School.

Possible branch for education of Consular officers.

classes will be brought within its scope, such as those for persons or merchants intended for the Consular service, which, however, would necessitate an extension of the system of education at present vouchsafed to Consular officers "de carrière" in Germany.

The following can be admitted as students :—

Conditions of
admission.
For Germans.

1. Commercial men who have obtained the privilege of one year's military service,* and who have completed their apprenticeship.

2. Students who have left the higher ordinary schools ("Gymnasien, Realgymnasien, and Oberrealschulen").

3. Teachers who have been at German teachers' seminaries, and who have passed the second examination there.

4. Foreigners, when they can show a corresponding education to the above, and if they are 20 years of age.

[NOTE.—The age is here restricted to 20, as younger foreigners can up to that age be educated in the ordinary commercial schools of Germany.]

As "Hörer," *i.e.*, visitors at lectures, other persons can be admitted by the Board of Directors, and especially students at the Leipzig University, as also traders, teachers, officials, and others.

Foreigners who wish to be admitted as "Hörer," visitors to lectures, must prove to the Board of Directors that they are able to understand the lectures and to take part in the practical work connected with them. As to their admittance to the University lectures, it is still undecided if they are at liberty to attend them at the same time.

For
foreigners.

[NOTE.—As the conditions under which the admittance of Englishmen seemed somewhat doubtful, Professor Raydt stated, in answer to enquiries as to what would be required and what documents should be produced by an English candidate, that it was not easy to reply, as the English conditions of school life did not entirely correspond to the German ones. It would, therefore, be necessary to treat each case and application separately; but that, generally speaking, all young fellows who had been in the 6th Form of a public school in England, or who were students from Oxford and Cambridge, would be admitted to the High School without any further proof of their education being required. He added that all boys who had passed the 4th Form of a public school, and who had, during three years, been engaged in business, could, at once, also be admitted. In the latter case, certificates of school standing and of business work would have to be produced. In fact any respectable young Englishman will be received on satisfying the Board of Directors that he is capable of following and understanding the lectures.]

There is no entrance examination for the Commercial High School.

The teaching department consists of two parts :—

I. Lectures; and II. Practical teaching.

Lectures and
practical
teaching
classes.

* This means having passed through the ordinary Commercial School.

As to lectures (I), the following courses are given:—

1. Theoretical and practical national political economy (duration two half-years, and five hours a week).

This includes the following subjects: Coinage, weights and measures, banking and stock exchange businesses, commercial politics, commercial statistics, credits, transport, and insurance.

2. Science of finances (duration one half-year, and four hours a week).

This includes the subjects of taxation, duties, and public credit.

3. Knowledge of substances of goods and technology.

This subject can be read up and combined with a practical inspection of goods in leading local firms.

4. Commercial geography (duration one half-year, and two hours a week).

[NOTE.—A good elementary general knowledge is assumed. Special importance will be given to the leading commercial movements of the day.]

5. Economic history, with special reference to commercial history (duration one half-year, and one hour per week).

6. General law knowledge (duration one half-year, and two hours a week).

7. Commercial law, law of exchanges, and maritime law, combined with practice in commercial law (duration one half-year, and five hours a week).

8. Law of bankruptcy (duration one half-year, and two hours a week).

9. Laws relating to industry, workmen's insurance, and ordinary insurance (duration one half-year, and two hours a week).

10. International law (duration one half-year, and two hours a week).

11. Colonial policy (duration one half-year, and two hours a week).

12. Special lectures for teachers of commercial subjects.

13. Other general lectures.

Under this head are included the great variety of lectures at the Leipzig University which can be followed. But the Director of Studies will determine which are suitable for the course being followed by any particular student.

As to Practical Teaching (II), the following courses are given:—

1. Commercial and statistical calculations, &c. (duration two half-years, and six hours a week).

This includes compound interest, dividends, annuities, the manner of paying-off loans, method of reckoning employed in insurance companies, &c.

2. Book-keeping, German commercial correspondence and other office work (duration two half-years, and six hours weekly).

In the second year, practical commercial exercises are given.

As to
attendance
also at
lectures of
Leipzig
University.

These are only for persons who have not previously had a practical commercial education.

It is thought possible that in the second year a few hours a day might be given, in suitable local firms, to a study of the business samples; or, that a department of samples might be created for this special study.

3. Technical and chemical practical teaching (duration two half-years, and two hours a week).

4. French commercial correspondence (duration two half-years, and two hours a week).

5. English commercial correspondence (duration two half-years, and two hours a week).

The teaching of French and English will be of the same class as that given in a "Realschule," under the Prussian teaching plan of 1891.

6. Italian (duration four half-years, and two hours a week).

7. Spanish (duration four half-years, and two hours a week).

8. Russian (duration four half-years, and three hours a week).

9. Shorthand duration two half-years, and one hour a week).

10. Practice on the type-writer.

The courses 6 to 10 will be started when a sufficient number of students have entered themselves for them.

Courses for other languages will also be instituted if the necessity arises.

The students at the Commercial High School have the right, when they have regularly attended the lectures and practical teaching classes, to take part in the closing examination. They will then receive a diploma, with attestation, for each branch of study. Final examination, and diplomas, &c.

It has not yet been settled how many and which branches are absolutely necessary in order to gain a diploma.

For the final examination a special Board will be appointed.

An attempt will be made to create a State Examination Board so as to give the diplomas, &c., a wider value.

For the "lecture visitors" ("Hörer") a certificate of attendance can be given, if desired.

For those students who intend to become teachers in the commercial schools, a special seminary will be created. Seminary for teachers, and diplomas.

As members to this seminary there can be admitted:—

1. Students at the Leipzig University, and other "academically" educated candidates for commercial teacherships.

2. Teachers from seminaries.

3. Commercial persons who wish to become teachers of commercial subjects, on the condition that they have obtained the privilege of only one year's military service, and have been engaged in business for at least six years.

Special diplomas will be granted for this seminary.

Annex 1.—PLAN of Studies for Summer of 1898.

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
7 to 8	General political economy	General political economy	General political economy	General political economy	General political economy	("Repetitor")
8 to 9	Industrial policy	Industrial policy	—	Industrial policy	Principles of commerce and transport.	Principles of commerce and transport
9 to 10	Arithmetic (commercial)	Arithmetic (commercial)	Chemical technology	Arithmetic (commercial)	Chemical technology	Arithmetic (commercial)
10 to 11	Business Correspondence	Book-keeping	Business correspondence	Book-keeping	Business correspondence	Mathematics for insurance purposes
11 to 12	Book-keeping	Scientific methods	Technology of the textile industry	—	Scientific methods	Technology of the textile industry
12 to 1	Introduction to the study of statistics	Introduction to the study of statistics	German colonial politics	—	—	German colonial politics
3 to 4	History of discoveries	—	Mathematics for insurance purposes	Geography and colonisation of German East Africa	—	—
4 to 5	The law of exchanges; commercial law; and maritime laws	The law of exchanges; commercial law; and maritime laws	The law of exchanges; commercial law; and maritime laws	The law of exchanges; commercial law; and maritime laws	—	—
5 to 6	General history of recent times	General history of recent times	—	General history of recent times	General history of recent times	—
6 to 7	Countries and towns of Middle Europe	Mathematics for insurance purposes	—	—	—	—

FOREIGN OFFICE.
1897.
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N^o. 430.

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ITALY.

**REPORT ON THE
SPONGE AND OYSTER INDUSTRIES OF
SOUTHERN ITALY.**

*Presented to both Houses of Parliament by Command of Her Majesty,
SEPTEMBER, 1897.*

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No. 430.

ITALY.

NAPLES.

Consul Neville-Rolfe to the Marquess of Salisbury.

(Received at Foreign Office, September 14, 1897.)

My Lord,

I HAVE the honour to transmit herewith to your Lordship a Report drawn up by me on the Sponge and Oyster Industries of Southern Italy.

I have, &c.
(Signed) E. NEVILLE-ROLFE.

Report on the Sponge and Oyster Industries of Southern Italy.

The immense volume of the sponge trade and the manifold ^{Sponges.} uses to which sponges are put by civilised mankind, from the cradle to the grave, together with the fact that of late years it has become an industry of Italy, whereas formerly the fishermen were nearly all Greeks, have suggested to me the following observations for publication. In the first place it is desirable to understand what a sponge really is, and for this purpose permission has been obtained from the editor of the popular handbook to the Naples Aquarium to extract a few of the leading facts which biologists have ascertained respecting this remarkable animal; for science has declared that a sponge is an animal, and the process by which this dictum was arrived at is particularly interesting. The distinction between animals and plants is sometimes so fine that it is no matter for wonder that mistakes were often made by the earlier school of naturalists, and it is only by applying the differential tests that the truth can be ascertained. Thus, a piece of sponge, when burnt, gives off a smell as of burning hair or horn, and exact analysis shows it to be allied to these substances. Again, though a living sponge is fixed and apparently motionless the holes in its surface are capable of opening and shutting, and from the largest of them, when open, a stream of water issues which is supplied by

innumerable smaller holes generally invisible except under the microscope.

Young
sponges.

Young sponges, varying from microscopic size to that of a pin's head, swim freely about by means of little waving hairs upon their surface, until they reach an age when they prefer security to independence, and monotony to danger. Finally it has been proved that sponges live on solid food. While thus possessing all those characters that are more frequent among animals than plants, they never contain any traces of the cottony and woody substances especially characteristic of the vegetable kingdom. The water entering by the small pores passes through a system of branching and fine canals, and is collected again by a similar system into the outflowing current from the large holes. At the junction between the two systems of tubes, are the most vital organs of the sponge, little swollen cavities of microscopic size, walled in with tiny living particles, each bearing a vibrating hair with which it lashes on the current, and a transparent filmy skirt, with which it catches any food that may pass. All this labyrinth of canals and cavities is living soft flesh. To prevent it falling a prey to the first hungry animal that passes, it is set through and through with little flinty needles or thorns.

Sponge of
commerce.

The sponge of commerce during life shows only the largest of its numerous holes; over all the rest the dark slate-coloured flesh forms a continuous film. It is obtained by diving, dredging, or harpooning with a long trident.

Levantine
sponges.

Of the different kinds the finest and most costly is the Levantine sponge, which extends on all the Eastern Adriatic and Mediterranean shores. It is not found west of Naples, indeed on the Italian coast no sponges occur in remunerative quantity, though recently some beds have been discovered near Sicily.

Zimocca
Sponge.

The harder Zimocca sponge from Asia Minor and Egypt fetches about one-tenth of the price of the Levantine, as does the coarse horse-sponge which is found in all the Levant, and extending along Africa to the Straits of Gibraltar.

After the removal of the soft parts of the sponge the fishermen usually fill the skeleton with sand so as to increase its weight and obtain a higher price for it. In rinsing a new sponge it is well to add a little hydrochloric acid to the first water, in order to remove all foreign substances. The sponge of commerce is rarely found in the Bay of Naples. It chiefly frequents rocky coasts and coral reefs; it does not live in very deep waters where its elastic skeleton is of no use, nor in very cold ones where we must suppose that the material composing it cannot be formed.

Export of
live sponges.

The Mediterranean sponge differs from and is superior to the sponge of Florida and the Bahamas, which form a large part of the British supply, and it has been in contemplation to export living sponges from here to those countries for propagation. No forecast can be made of the result of such an experiment, except that it would be a very costly one, as the living sponge must be taken up together with a portion of the rock upon which it grows, placed in a special tank on board a steamer so constructed that

an equal temperature could be preserved throughout the voyage, and then the locality of the new colony would have to be carefully selected, in order to keep up the distinction between the natives and the colonists.

In the ordinary course of sponge-fishing the fisherman, having once secured his sponge, proceeds to prepare it for the market. In this climate the animal rapidly decomposes if exposed to the air, and as soon as this process has set in, the body must be rapidly beaten, or washed in running water till the fleshy substances are thoroughly removed. If decomposition has advanced too far, no process is known by which the skeleton can be purified and rendered fit for use. The sponges when cleaned must be thoroughly dry before any attempt is made to pack them; for, if amongst the sponges packed any should be damp, they will assuredly heat, and develop orange-coloured spots, which the Greek fishermen call "sponge cholera." Thus dried the sponges are conveyed to market. The mean price of fine Levant sponge is about 14s. per lb., and of common sponges 6s. per lb. This includes, as we have suggested, the sea-sand which the fishermen put into them. From the market the sponges go to the wholesale dealers all over Europe, who trim them up for domestic use, and disperse them among the retailers. These often resort to the undesirable process of bleaching them. This process is performed by the use of chemicals, which always have a deteriorating effect on the tissues of the sponge. Mutilation injures a sponge but little. Divided with a sharp razor even the smallest fragments retain their life, and under favourable conditions they will live and grow. So much is this the case that experiments in sponge-farming have been made, but the results have not been sufficiently sure to make the enterprise assume a practical form. Its advocates tell us that if a living sponge is cut into pieces with a sharp instrument, and the pieces fastened to canes immersed in clean sea-water, the fragments will grow to marketable size in five years, when of course they can be fished without expense or trouble. The great practical obstacle is in establishing ownership over a suitable spot, apart from the initial difficulty of finding such a spot. There is just that difference between cultivating oysters and sponges, that the former can be grown in waters where ownership is obtainable, and where stealing them would bring an offender in reach of the law, whereas this is not the case with sponges.

Treatment of sponges.

Sponge cholera.

Sponge farming.

The principal market in Europe for sponges is Trieste, the annual turnover being reckoned at 110,000l. Sponges are found pretty well all over the globe, and as far as is known have no particular breeding time, so that a close season for the fishery does not seem to be required.

Sponge market.

The boats used for sponge-fishing are smaller than those used for the coral fishery, as they operate in shallower water, and nearer to the coast. For the present season, 1897, 87 coral boats, with crews numbering in all 970 men, and 52 sponge boats with 260 men, have left Torre del Greco for the fisheries.

Boats.

Lake Fusaro.

It is much to be regretted that scientific men have laid it down most positively that the Lake Fusaro is unsuited for the production of sponges, for here we have ownership, and every apparent advantage. Fusaro is a lake about three miles in circumference, situated about 12 miles from Naples, with a railway to its very shore. It has an inlet from the sea, which enables the lessees to change the water at pleasure by means of an ordinary sluice. Some years ago a company was formed to hire this lake from the Crown at a rent of 1,000*l.* a year, and establish an oyster and fish farm in it, such as we know the ancient Romans possessed in the neighbouring lake of Lucrinum. The annual production of oysters amounts to about 800,000, the stock in the beds amounting to 3,631,000, or, excluding oysters which are not yet marketable, say 2,000,000. Year by year the increase becomes greater, and no doubt by careful management the fishery might become very lucrative. The difficulty has been to find a market. Taranto in the south, and Spezzia in the north, have their own oyster beds and a large export trade; the latter, however, has been useful to Fusaro, because it has not been able to keep up a supply equal to the demand, and has had recourse to the Fusaro Company for assistance. Partly from over-production and partly from losses occasioned by the mismanagement of their trippers' restaurant, the original company was compelled to suspend payment, and, in the meantime, all sales being prohibited, their stock continued to increase till, on a valuation of their assets, it was found that the property had a potentiality of value far greater than had been imagined. On testing the lake after its period of rest, 70 quintals (about 7 tons) of fine fish were taken out of it, many of them weighing as much as 10 lbs. These were netted in a few days, and do not represent anything like what the annual production of the lake might be. The chief kinds caught were *Sparus Annularis*, *Sargus Vulgaris*, *Mugil Cephalus*, *Labrax lupus*, and *Chrysophris aurata*. It must be remembered, too, that these fish came into the lake of their own accord, at no expense to the company, other than the keeping in order of the sluice and its attendant canal, so that ingress from the sea should be easy, and egress from the lake impossible.

Oysters.

Failure of
original
company.

New
market for
produce.

It seems to be abundantly proved that the produce of the lake both in fish and oysters might be very largely increased, and it may be taken for granted that many new sorts of fish might be introduced and acclimatised, and that other improvements might be made by wise and competent management; but the question of the market for the produce is the crucial one. The solution for this is not very far to seek, for by an arrangement with the Orient Line of steamers two ships have been fitted up experimentally with freezing chambers, for conveying frozen meat from Australia to Colombo and Europe, and it is proposed that these chambers should be filled with fish and fruit at Naples on the return journey for sale in the colonies. The fish would be frozen, and the fruit kept at a somewhat higher temperature. As these ships pass Naples every fortnight, the Fusaro Company

would have a regular fortnightly customer for their best and largest fish, and it might not be impossible to manage the transport of living oysters if not to the East, at all events to London, which is reached by the steamers in about seven days from Naples. There is one point of great importance in favour of the Fusaro oyster, and that is there is no possibility of sewage contamination, the banks of the lake being absolutely uninhabited. The syndicate engaged in the Colombo and Australian trade, or some other capitalists, might do worse than look into the Fusaro fisheries, provided the output is secured to them by the exporters of frozen provisions. The cost of the oysters to the company is calculated at 25s. per 1,000, and hence, if they could be sold at 3s. a dozen, there would be a gross profit on every thousand of about 11%. The retail price per dozen here is 2 lire 40 c. for firsts, 1 lire 20 c. for seconds, and 80 c. for thirds.

The vicinity of the Naples Aquarium is an important factor in the success of the company, for the scientists there have made a study of the biology of these waters for a quarter of a century, and have made many unique discoveries in that period. Much of the success of the Fusaro fisheries is due to the advice which two of the aquarium staff have given the manager of the Fusaro Company. The aquarium completed its first quarter of a century of existence in April last, when a banquet was held, attended by the Home Secretary, the German Ambassador, and the chief local authorities. The freedom of the city was conferred on Dr. Dohrn, the learned founder of the institution, who, in an able speech, gave a résumé of the early struggles of the institution and its subsequent magnificent success.

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1897.
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N^o. 431.

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COMMERCIAL INTEREST.**

ITALY.

**REPORT ON THE
CULTIVATION OF THE CAROB TREE.**

*Presented to both Houses of Parliament by Command of Her Majesty,
SEPTEMBER, 1897.*

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ITALY.

NAPLES.

Consul Neville-Rolfe to the Marquess of Salisbury.

(Received at Foreign Office, September 14, 1897.)

My Lord,

I HAVE the honour to transmit herewith to your Lordship a Report drawn up by me on the Cultivation of the Carob or Locust-bean Tree.

I have, &c.
(Signed) E. NEVILLE-ROLFE.

Report on the Cultivation of the Carob or Locust-bean Tree.

In the course of last spring a well-known gentleman from South Africa made enquiries at this Consulate concerning the cultivation of the carob or locust-bean tree and the possibilities of its introduction into the Cape Colony. The carob is a tree the fruit of which consists of a long pod which not only forms excellent horse-food, but is very largely eaten by human beings, especially children, on account of its sweetness. The pods contain very hard beans which are useful only for seed, as horses leave them in their mangers, and if by chance they swallow them, it is found that they do not digest them. The tree bears, moreover, thick dark ever-green foliage which gives a cool and grateful shade. It grows in many places in the Mediterranean where nothing else will grow, notably on the arid hills of Malta, and it seems certain that in the endless varieties of soil and climate to be met with in the Cape Colony there must be many districts where it would grow freely. The successful result of such an experiment would be simply invaluable to the colony if merely as a supply for horse-food, for one of the greatest difficulties in travelling at the Cape is to feed one's horses, the price of forage in some districts being extremely high, and the supply often distressingly short. Forage, moreover, as it consists of oats with their straw, is not readily portable, but

carobs enough for a pair of horses for a day can be carried in a small bag. The carob in Italy grows alongside the oranges and lemons, and there can be no reason why it should not grow with the magnificent orange trees of Wellington, and become as superior to the carob of Italy as the Cape orange tree is superior to its Italian prototype. In places like Graaf-Reinet, and Aliwal North, the success of the experiment seems absolutely certain, while, judging from the way the tree prospers on the dry stone of Malta, where it grows with apparently no soil to help it, there is good hope that it might take kindly to the "Kopjes" near Colesberg, the bush veldt of the Western coast, the lower slopes of the Drakenfelds, or among the trees of the Knysna forest. The writer being well acquainted with the Cape Colony has had much pleasure in investigating the matter thoroughly, and, after lengthened consultation with practical arboriculturists, the following *modus operandi* has been decided upon. First, a sufficient quantity of seed will be sent out to grow a number of seedlings in different parts of the colony. These seeds will produce carobasters, which will not have a fruit worthy of the name till they are grafted. The strongest seedlings may be grafted in their third year, but it is of no use to graft until the plant is strong and well grown, which may not be till it is five or even seven years old.

General
scheme.

A number of plants in pots will be grafted here next spring, repotted in larger pots with plenty of clay, and when the grafts have taken well the trees will be packed, the clay well soaked in water, and it is confidently hoped that they will bear the journey satisfactorily. They will be sent from here in the month of February, and will probably travel *viâ* England, which seems climatically preferable to the East Coast route, by German steamer to Durban *viâ* Zanzibar. If the coincidence of the steamers can be secured they may reach Cape Town within a month of their despatch from here, or even less, but if not, we have no doubt that the steamship company will see that the roots are kept carefully wetted while the trees are in bond at the port of origin. It is with the object of keeping the roots wet that they are now being repotted in stiff clay, a soil which is in itself favourable to the growth of the tree.

Details.

Having thus given a general sketch of the scheme, it is necessary for its success to enter into minute detail as to the method to be employed in the cultivation of the trees. We will first take the plants to be exported two years hence, because these are ultimately the most important part of the subject. If they should succeed, the acclimatisation of the tree at the Cape is assured; if they fail, the seedlings will be comparatively valueless for want of grafts. It is the fixed opinion of people here who have studied the subject closely, that there would be no chance of grafts sent out arriving in a condition to be of any value whatever, so that it becomes absolutely necessary to send out the plants themselves; besides, when the plants at the Cape were ready to be grafted, our grafts would be out of season

here. We have already secured some excellent plants, from each of which a large number of grafts should be available. Plants for grafting. It does not seem possible to secure plants already grafted, for the reason that they are not usually grafted in pots, the operation being performed after they are planted out and have got a good hold on the soil which is to be their permanent home. We cannot graft these plants till May, 1898, nor can we be sure of the success of the operation till May, 1899, when the plants will be sent out. The carob is a tree which cannot be transplanted on account of its tap-root, so that once planted it must remain where it is; it is therefore very essential to plant it in the right place to begin with. In the case of our plants it will be necessary to top them and to cut off every leaf, in order that the sap may not be exhausted by the foliage when it begins to rise. We shall consequently export mere skeletons to the colony, and here again we have another difficulty to contend with, namely, the change of season. The plants will leave here at the end of our winter, and will arrive at Cape Town at the beginning of the South African winter. They will thus have a great strain put upon their nature, and great care will have to be taken of them to enable them to overcome it. This care they will certainly have at the hands of the managers of the Botanical Gardens in the colony, so that this is one of the least of our anxieties. The details in this report would therefore be unnecessary, but for the fact that as the experiment will be tried on an important scale, and many of the plants will fall under the care of less capable hands, it is advisable to give very clear instructions. On arrival at their destination the plants Potting. must be carefully potted in garden mould, to which a little old farmyard manure should be added, and the pots must be moved from time to time to prevent the plants striking a tap-root through the hole at the bottom of the pot into the soil, in which case they will certainly perish. They will not require very much water, in fact the climate of South Africa so much resembles that of Naples that were it not for the clay which we must send with them the plants would scarcely require water at all in the Cape winter. If, however, this clay gets hardened it may kill the rootlets which by that time will have spread into it, and give the tree a worse chance, so that the clay must be kept moist. It may be desired to plant the trees out at once, but this should not be done in windy weather, and on the whole it will be safer to pot them, at all events for a few months till they can recover from their journey.

With regard to the seedlings, they should be sown in pots Seedlings. with proper drainage, and in garden mould, with a slight sprinkling of old, short, farmyard manure. The greatest care must be taken to move the pots often enough to prevent a tap-root being struck through the pot into the ground beneath. Experiments may safely be made by sowing seeds in the spots where they are intended to remain, and grafting them when the plants come to maturity, but this should be done in enclosed gardens or

places where the plants can be guaranteed from being choked by weeds, nibbled by sheep or game, or otherwise harassed in their early years. The carob grows freely in dry soils, but, economically speaking, it has been found preferable to raise them in pots. The seeds will be sent out in the pods, as this has proved to be the best method for their preservation. It is desirable to remove the beans from the pods, and soak the beans for four days before sowing them; the seed thus gets softened, and germinates more rapidly. At Naples the seeds are sown in February and March, but they are apt to sprout very unequally. The majority grow freely and well, but some come up as late as October, and then generally develop weak plants. The strongest seedlings may be potted at the end of the first year, or even as early as November; the weaker ones at the close of the second. They must be kept in pots till they are finally planted, as they will not bear transplanting, and windy weather should be avoided for these operations. The experiments conducted here show that it takes a minimum of four years and a maximum of seven to produce a plant. A strong plant may be planted out in safety in five years, but much depends on the skilful care of the seedlings in the nursery. Each plant brought to maturity in this country is calculated to cost 8*d.*, and it has been found by experiments that it is cheaper in the long run to grow the plants in the nursery than to sow them in the open ground. They are not particular as to soil, and grow freely in clay, if not too wet, in sandy soils, and in the clefts of rocks, where of course holes of about a cubic yard must be dug for them and filled up with soil, drainage being provided in the ordinary way. It is usually necessary to build a rampart of stones in the shape of a crescent on the lower side of the hole to prevent the soil from being washed away. On "Kopjes" and hill sides the trees must be planted on such spots as offer a position, unless the hill has soil enough to be terraced, but on open arable land they should be planted in rows from 12 to 15 yards apart. The intervening ground can be used for garden crops, but these must not be grown within four feet of the young trees, although the ground round the trees may advantageously be dug over when the rest is prepared for cropping. Exhausting crops, such as corn and mealies, must not be grown, but cabbages and garden produce generally will do no harm.

Cost of
plants.

Mountain
planting.

Grafting.

It is better to let the plants obtain a strong growth before attempting to graft them, the third year being about as early as it is prudent to do it. If a plant is very full of leaf it is desirable to leave it alone and not to graft it at all, for a reason which will appear below, and also because being leafy it may be taken to be a good variety. The season for grafting here is from the middle of May to the end of June, the grafter being careful to see that the bark opens easily. The best plan is to graft on the boughs and not on the stem, leaving the smaller boughs to utilise the winter deposit of sap, which may otherwise prove injurious to the grafts. These boughs can be cut off in the following year. The

carob can also be satisfactorily budded, or grafted by sawing off the trunk and cleaving it. In windy situations it will be necessary to bind canes to the grafted boughs to stiffen them, and to prevent the grafts from moving. The best two varieties of carob are both called here the "Honey bag": one bears a long narrow pod, the other a short wide one. Varieties.

The object of leaving a fair sprinkling (say 25 per cent.) of ungrafted trees in a grove is the following. The grafted tree produces almost exclusively female flowers, the ungrafted tree males. Unless these flowers are in due proportion there can be no crop; and in fact this was the primary cause of the failure of a carob grove in Sicily, a cause which was discovered and remedied by Professor Bianca. In planting these trees on ordinary arable land great inequality will often be found in the plants, which arises from the fact that the carob cannot support water. Hence, where water accumulates in the subsoil the tree will not grow, whereas, where the water drains away, it will grow freely, and for this reason a hill side is the best situation for a grove.

Some years ago the Italian Alpine Club agreed that it would be greatly to the advantage of South Italy, and would add materially to the attractions of the mountain scenery, if the Apennines, which are now for the most part quite bare, could be made to grow trees such as there is every reason to believe that they did in more ancient times. They determined to consult Signor Savastano, the professor of arboriculture in the school of agriculture at Portici near Naples, who gave it as his opinion that the mountains where the lentisk and the myrtle grow freely enough could be utilised to produce the more remunerative carob. To the obvious advantage of reafforesting the mountains, and thus adding to the rainfall, would be added the production of a valuable crop where nothing saleable had grown before. Prince Belmonte's groves.

The great carob-growing districts of South Italy are in the Bari region on the Adriatic coast, and quantities are exported annually to Russia and central Europe from Brindisi and the other ports along the coast. Though the tree may be seen in almost any garden here, and is not uncommonly found on the mountains, the only person who has made a hobby of its cultivation is the Prince of Belmonte, who has large properties in the province of Salerno not far from the ruins of Paestum. Besides planting several trees in his shrubbery, the Prince has a long avenue of them leading up to his house, which is particularly interesting, and is, we believe, the only avenue of its kind. The trees are planted 7 metres apart, and the largest of them has a trunk of 85 centimetres (about 2 feet 9 inches) in circumference. This tree is 18 years old, and its top is from 6 to 7 metres in diameter, and 4 or 5 in height. In common with the other trees of the avenue the fruit is of the best description, and each tree may be taken to yield annually 50 chilos, or say 120 lbs. of fruit, worth here about 6 shillings. This may be spoken of as the ornamental part of the work, while the plantations of *Licosa*

and Tresina are more on the scale of a commercial enterprise. They are both germane to our present purpose, as they show in what different circumstances the carob will grow and flourish. The Licosa grove is in a plain by the seaside, and the difference of the trees is very remarkable, some of them growing with great vigour, others not flourishing at all. The reason of this must be the existence of land-springs beneath the surface with which the weaker trees come into contract, and by which their growth is checked. There is no other apparent reason, and as the grove consists of about 1,500 trees there is scope for observation. The site is very much exposed to the wind, and in the first attempts at forming the grove as many as 70 per cent. of the plants were lost. There were other causes too which led up to this heavy loss. First, the whole thing being an experiment, they did not know at what period and in what way it was best to graft the trees, and also the grafters had not anything like the skill which they have since acquired.

The grove at Tresina is planted in altogether different conditions. Here we have a hilly country fully 1,000 feet above the sea, and here the outside loss of plants has been 20 per cent. which is not more than occurs in the planting of ordinary forest trees. The plantation consisted originally of 7,000 trees, but has been largely increased year by year, and the Prince expresses every confidence that in a few years' time he will clothe the barren slopes with a mantle of luxuriant green. Professor Savastano asks very pertinently why, if these results can be obtained at Tresina, they should not be obtained elsewhere, and thousands of barren acres of Italian mountains be made useful and productive. And in fact, since he wrote upon the matter, the spread of this cultivation has been steady and continuous. We have shown pretty plainly that Prince Belmonte has attained success only by patient experiments extending over a considerable number of years. Commercially speaking he is abundantly satisfied with the results obtained, but he does not relax his efforts. He rears some 8,000 seedlings every year, and has a skilled staff to conduct all the necessary operations, with the result that he grows a valuable crop on ground which before was absolutely unproductive; and if the landed proprietors of South Africa profit by his experience and are equally persevering, and the tree, as is anticipated, proceeds to grow like a weed, its introduction should form a mine of wealth to our industrious colonists. There is one important advantage that the carob has over other beans, namely, that it does not require threshing. In feeding horses it is usual to break the pod into two or three pieces and to put it in the nosebag or manger mixed with bran.

FOREIGN OFFICE.

1897.

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N^o. 438.

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COMMERCIAL INTEREST.

ITALY.

REPORT ON THE
CULTIVATION OF THE OLIVE IN ITALY.

*Presented to both Houses of Parliament by Command of Her Majesty,
DECEMBER, 1897.*

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ITALY.

NAPLES.

Consul Neville-Rolfe to the Marquess of Salisbury.

(Received at Foreign Office, November 22, 1897.

My Lord,

As I find that a large number of Olive Trees is being exported from this Consular district to Australia and South Africa, I venture to send you a Report on their cultivation.

I have, &c.

(Signed) E. NEVILLE-ROLFE.

Report on the Cultivation of the Olive in Italy.

It is certain that the greater part of the Mediterranean littoral was in ancient times, as it now is, the home of the olive, and of all the countries which claim the tree as indigenous, Italy is that which is the chief of the oil-producing countries of the region. And in Italy it grows upon a great variety of soil, and in a fair variety of climate. It is found wild on the scorching and rocky hills near Taranto where it grows from seeds which have probably been carried from place to place by birds, and casually deposited in some fissure where sufficient soil has been found to nourish the young plant. For birds are extremely partial to olives; indeed in the southern provinces of Italy, where the large migratory thrush, so heartily praised by Horace on his journey to Brundisium, still abounds, we find the expense of gunpowder for bird-scaring a considerable item in the olive growers' accounts. The cultivated olive, too, is a tree which is very independent of soil, and may be seen growing on a rocky hillside or on the deep soil of the plains and flourishing as well in the one situation as in the other.

The small province of Lucca has given its name to the finest table oil in the world, and though the best oils of Bari in this district compare favourably with it, they have not the same celebrity. In point of quantity at least this consular district is far ahead of the rest of Italy, as will be seen by the following figures.

Production and export.

The total amount of olive-ground in Italy is officially estimated at 908,072 hectares (a hectare being roughly $2\frac{1}{2}$ acres), of which 492,430 hectares, or more than half the total, are in this district. The total produce of oil is reckoned at 3,350,143 hectolitres, of which this district yields 1,934,948 or more than half of the produce of the whole kingdom. Of the South Italian oils those of Bari have the greatest repute, and many of the trees are of very great antiquity. The annual export of oil from Italy amounted in 1888 to 63,500 tons. A very large proportion of this export goes to the British Empire, and though no doubt the importers care little about the methods of the cultivation of the tree, as compared with the market price at which they can purchase the oil wholesale, the cultivation is an important item to British trade, because a determined effort is being made to introduce the tree both into South Africa and the Australian Colonies. The plants are being sent out in considerable numbers from Naples, chiefly, if not solely, by the firm of Messrs. Dammann, of Portici, a suburb of Naples, who have also charged themselves with the introduction of the Karob into South Africa (see Report No. 431 Miscellaneous Series).

Uses of oil.

It is unnecessary to mention the variety of uses to which olive oil is put, but it may be interesting to note that large quantities are used on sheep-runs in the Colonies for sharpening the clippers at shearing time. Time alone can show what success the introduction of the tree will have in our Colonies. It may be that the best oil will be produced; it may also be that only the lower class oils, such as those grown in Turkey, which are only useful for making soap, will be manufactured, but at any rate a useful lubricant will be obtained, and a very picturesque tree added to the landscape. In the meantime a report in English on the cultivation of the plant cannot fail to be of service.

The oleaster.

The wild olive or oleaster is a tree of small and stunted growth and yields a fruit from which very little oil can be procured. The grafting of the oleaster was known in very ancient times, and is mentioned by St. Paul in his Epistle to the Romans who, however, for the reasons of his metaphor, or perhaps from ignorance of arboriculture, reverses the process, and describes the oleaster as being grafted on the olive, whereas of course it is the cultivated tree which is grafted on the stem of the wild one. The oleaster can be raised from seed in the ordinary way, or it can be raised from the fungoids which olives bear underground at the point

Olive wood.

where the roots separate themselves from the trunk. Olive trees live to a very great age, and their wood is very useful for cabinet making, as it is hard as well as pliable and can be easily manipulated. The smaller boughs form excellent fuel, for owing to the oil in them they burn like a torch, and as the trunks of old trees are apt to become hollow, many of them are only fit for the same purpose. The tree is evergreen, and the leaves fall after about three years, being of course constantly replaced in the course of nature by younger ones. The olive commences to

flower at the base of its foliage, the flowers gradually extending upwards. The best crops are always obtained when the trees flower early, and this occurs (when the spring is mild) as early as the month of March; but the tree is susceptible to cold, and if it gets checked it will flower as late as June, in which case a failure of the crop may be anticipated. Old trees usually yield a crop only in every alternate year, which is gathered in the autumn and early winter. The largest trees are found in Sicily, where they grow almost like oaks, and may be found measuring 25 feet round the trunk.

The Italian Blue Book on agriculture published in 1874 names **Varieties.** 300 varieties of the tree as existing in Italy, of which 67 are found in this Consular district. Obviously, in a country like Italy where so many dialects are spoken, in many cases the names of these varieties are purely local, and as the same variety is called by one name in Tuscany and by another at Naples, it would be absolutely useless to mention distinctions which have no difference, in a report written for British readers.

Olives are in fact divided into three classes, namely :—(I) the **Classes of** small olive with few leaves, which grows freely, resists the cold **olive.** better than the others, is more free from disease, grows on the poorest soil, and though generally very hardy, does not yield good oil, and is useless for table purposes. This tree will yield oil good enough for sharpening shears and for mechanical purposes generally, and it will grow almost anywhere. It is known by the names of "Miguda," "Trillo," "Cerisiola," and "Martino," in Italy. The second class known as "Olivi di Spagna" has larger leaves, a large and succulent fruit adapted for table use, subject to the necessary treatment. These trees require rich and good soil and no great vicissitudes of temperature; they will not bear cold, and are subject to a good many diseases. If they get chilled the fruit falls, and such berries as remain give but little oil, and that of poor quality. These varieties are supposed to have come to Italy from Spain, and to have found a climate in Italy which does not always agree with them. They might all the same do well in the warmer climate of Australia. The third class is preferable for general cultivation, as it avoids both extremes, being hardy, and at the same time producing a good and useful crop. These are known in Italy by the names of "Razze," "Corniola," "Ogliarolo," "Pigudo," and "Monopolese."

Like the palm, the olive will flourish in many places where it **Climatic** will bear no fruit. It will not yield in very hot places, and it **conditions.** will not endure frost, or sudden transitions from cold to heat; it does not mind sea air, and in many places on the Mediterranean it grows to the water's edge, where it must often be affected by salt and spray. Twelve degrees centigrade below zero (10·4° Fahr.) is enough to wither the leaves and to kill such roots as are on the surface. A late spring frost is naturally more harmful than a winter one, and damp cold than dry, conditions which apply to all evergreen trees. In this district the altitude at which olive trees can be found may be reckoned at 1,500 feet above the sea-level.

As a rule they thrive better on hills than in the plains, because any cold they are subjected to is less damp in the former situation than in the latter. In a temperate season the trees in the plains will bear better than those on the hills. With regard to exposure: in this climate the east and north are preferable as affording less sudden changes than the southern and western exposures, but south of the "line" the conditions would be different or perhaps reversed; the main point to be considered being to give the trees as equable a temperature as possible, and to avoid frost and violent autumn winds, which are apt to shake down the berries.

Manure.

Olive trees are the better for manure, but the kind of manure used depends, as will be seen, very much upon the nature of the soil in which the tree is planted. Farmyard manure, if well decomposed, may be placed in trenches round the trees, but special care must be taken to put such trenches far enough away from the trees so that the roots are not mutilated by the digging, as they are particularly susceptible to injury from this cause. It is a good plan to soak the husks and refuse of the oil presses in water till they have thoroughly rotted, and then infuse manure and other decaying vegetable matter in the water before placing it in the trenches. Too much manure should not be given at one time, little and often being the golden rule. Of artificial manures, soda is that most frequently used. Lime and silica are necessities, but care must be taken in applying them that they are not already existent in the soil in sufficient quantities, as if they are abundantly present more harm than good will be done by their application. Wood-ashes and phosphates may safely be mixed with the manures used. The autumn is the best season for the application, as the manures get incorporated into the soil during the winter, and serve to feed the roots more plentifully in the spring. Most trees are the better for being manured annually. Green crops for sheep feeding or cabbages can be grown between the trees without injuring them.

Dead trees, shoots from.

It will be many years before any olive tree in the colonies falls from age, or, being mature, dies a natural death. When a tree dies it can be sawn off above ground, and, if the roots are still alive, they will throw out offsets. If these are attended to, and the bottoms of them well covered with earth, they will throw out rootlets, and, when these are well grown, the shoot can be cut off with its roots and put into the nursery. One or two good shoots should also be left on the old trunk, as they will throw up and form useful trees. They will require grafting in due time. Where the wild olive tree grows, it is a simple matter to transplant it and graft it, but this will not occur in the colonies for many years to come.

Seedlings.

The olive will also grow from seed, and this, in fact, though it is a slow process, is in the end superior to any other. The trees do better, live longer, and are much less liable to disease than those propagated in any other way. The seed will germinate in the second year if left to itself, but, if it is softened by being placed in a pap of clay and cow-dung, and sown

thus, it will germinate the same year. It is necessary to sow in thoroughly clean ground, so as to allow a free and prompt expansion of the rootlets. The ground should be dug three feet deep, thoroughly cleaned and richly manured. This should be done in the winter, and in the spring the surface should be laid out in shallow trenches, in which the seeds should be sown in rows about a foot apart, with a distance between the seeds of not less than six inches. The sharp end of the seeds should be upwards, and they should be treated with a fair amount of water. It is especially essential that the ground should be kept clean, and all weeds immediately removed. In the spring of the third year the seedlings may be moved to the nursery, all shoots appearing on the tiny trunks having been carefully removed.

The most usual way of propagating the olive is by means of **Propagation by fungi.** an egg-shaped fungus growth, which is found upon its roots. It is about the size and much the shape of a turkey's egg, and grows outside the bark. Not more than two of such fungi should be removed from a single tree, or damage will be done to it. Indeed, if propagation is attempted on a large scale, it is better to sacrifice one tree altogether than to run the risk of injuring a greater number. Thus a hundred or more of these fungi can be obtained from a single tree in the winter, besides a great number of slips and grafts in the spring, when the tree can be felled and disposed of. The removal of the fungus must be done with care. The wood of the root round it must be carefully sawn or chipped with a sharp axe. A chisel must then be used to undercut the fungus, and finally lift it out of its place. The wood which adheres to it can then be cut off with a sharp knife. If the fungus has plenty of eyes it may be cut up like a seed potato, but it is always advisable to make the pieces so large that each piece should have three or four "eyes." If the fungus has made any roots, these should be carefully removed. The best time to take them is in the winter, before the sap begins to rise, and they can be kept till the spring in dry earth, mixed with chaff to soften it. They should be planted in March.

The only remaining method of propagation is by cuttings. **Propagation by cuttings.** These should be about 18 inches long, of which 12 inches should be beneath the surface. The thickest or lower end of the cutting should be cut into the shape of a wedge, and it should be well daubed with cow-dung and covered with garden mould. It can then be planted, care being taken in making the holes not to twist the rod which makes the hole, otherwise the sides of the holes become hard, and the rootlets do not get a sufficient chance of expansion. Cuttings with boughs to them are treated in the same way, save that the cutting is laid in the ground horizontally, but with the thick end lower than the other and the boughs allowed to protrude above the surface. In a year's time the part beneath the surface will be furnished with roots and the boughs with leaves. The whole thing can then be taken up, each bough separated from the other, and the cuttings placed in the nursery.

The oleaster is grafted in the same way as other fruit trees, **Grafting**

namely either by sawing it off and inserting two or three grafts between the bark and the trees; or by cutting a slit with a transverse cut in the shape of a T, opening up the bark and inserting the graft, or again by cutting away the bark and a portion of the wood from the bough and the graft, making a point of contact of about half an inch, and then binding them strongly together with wool and covering the point with a mixture so as to seal it hermetically. All shoots which occur below the graft should be cut off.

The following is a useful mixture for the purpose of grafting:—

					Per Cent.
Black Swedish pine	..	..	..	..	28
Burgundy pitch	..	..	..	..	28
Yellow wax ..	..	..	..	..	16
Lard or tallow	..	..	..	..	14
Ashes	..	..	..	..	14
Total	..	..	..	..	100

Nursery.

Much need not be said about the nursery, as this part of the subject is influenced by local conditions which are known on the spot and may perhaps differ materially from conditions prevailing in Europe. It will be useful to mention that the ground in the nursery should not be too rich, because, if it is, the young plants form far fewer roots to feed themselves with than will maintain them in a poorer soil, and hence they get a serious check when they are moved to their permanent home where the soil will naturally be poorer than that of the nursery. If, on the other hand, they have been grown in comparatively poor soil they will have made more roots, and will move much better. In whatever way the trees are propagated they should remain eight years in the nursery before going to their permanent home. In the case of plants grown from the egg-like fungus a certain amount of careful cultivation is necessary. About six weeks after they are planted, shoots like asparagus heads will appear. In order to give these every chance, the ground above them must be kept loose, and if it has become dry and caked it must be watered. From each piece planted some half dozen shoots will rise. Of these only the vigorous straight ones should be preserved, the rest should be carefully pinched off below the surface with the finger and thumb, care being taken not to move the plant which by this time will have made tender rootlets.

Pruning.

Not more than two shoots should be left, and these should be trained to sticks. Later on the less vigorous of these should also be removed. The training of all shoots, whether from cuttings, fungus, or any other means of propagation is most necessary. At first, they can be trained to canes or small sticks, but when they begin to make a top it will be necessary to support them with a stout stick, and to continue this support till they have thoroughly

taken root in their ultimate home. On hot dry soils, such as will generally prevail in Australia, it is desirable to keep the trunks short. Hence in grafting they should be sawn off from three to four feet above the ground level. In fertile soils in Italy, the height is left at as much as five feet, but in arid soils the rule is "the shorter the better." The fewer boughs left on the stem the better. Some growers cut them all off, but the effect of this is to delay the fruiting of the tree by a year or so. Whether it answers in the long run is a point much disputed, and not very easily capable of proof.

Olive trees should be planted not less than 20 feet apart in ordinary soil, but where the soil is good this will not be sufficient, and 40 feet is a safer distance. The holes should be three feet deep, and three feet over, and where the soil allows of it they should be dug two or three months before they are wanted, as exposure to the sun and air is found to fertilise the soil taken out of the holes. It is desirable to put stones, or dry rubbish in the bottom of the holes for drainage, and if the land is damp it will be necessary to drain it, consequently ground with a good fall should always be selected. The best manure consists of the scrapings and fragments of horny substances and ground bones. Deep planting is not recommended, and the trees should be set about six inches deeper than they were in the nursery. The shoots should be pruned in order to stimulate the roots, and a trench or cup left round the tree to collect rainwater. If the following season should be a dry one, it will be necessary to water the plants copiously. All shoots that appear on the trunks should be taken off at once, unless they are so situated as to eventually form part of the top of the tree. The best way to take them off is to rub the tree down with a piece of canvas. This not only removes the tender shoots, but prevents the trunks from accumulating lichens and mosses. All plants do not sprout in their first year, it is therefore important to make sure that any plant is dead before taking it up. For three or four years the plants should be left quite alone, after which the weaker boughs should be cut away, care being taken that those which are left are as symmetrical as possible to insure a handsome top to the tree. Boughs can, of course, be pruned and trained into their places if necessary. It is better also to remove roots which are too near the surface, as they prevent the development of the lower roots which are essential to the tree. In the fifth year pruning should be carried out. The dead knob above the grafts should be carefully sawn off obliquely with a sharp saw, and the place covered over with the pitch composition given above to prevent the tree from bleeding. The top should then be carefully pruned so as to secure a shapely tree.

As the tops will now be getting heavy the trees require more support to save them from the wind which otherwise would displace the roots. Three props should be put to the trunk of each tree, and at the point of contact the tree should be protected by a band of straw, so that the props may not chafe the trunk. It is also necessary, when winter comes on, to bank up the trees by

Planting.

Props.

making a trench round the roots, and throwing the earth up against the stem. This must be levelled again in the spring, leaving a circular trench on the upper side of the tree to collect any rain that may fall.

From this time onward the pruning of the trees becomes very important, and should be attended to every year as soon as the crop is gathered. It must be remembered that the vertical shoots of an olive do not bear fruit, and that no shoot bears fruit in its first year, so that care must be taken to distinguish between the second year shoots and those of the first year. Unless the trees are properly pruned the fruit will be small, will give very little oil, and will only yield every other year, whereas with proper pruning the trees may be made to yield every season. The fruit should be hand-picked, or allowed to fall from the tree on to a canvas or sacking spread beneath it. The boughs may then be shaken, but the tree should on no account be beaten, as this knocks it about and injures the shoots, which will, if left unharmed, bear fruit in the following season. The egg-shaped fungus which we have already mentioned as appearing on the roots of mature trees should immediately be suppressed upon young trees. They should all be carefully cut off as soon as they appear, as they take too much out of a growing tree. Local experience alone can decide the best methods for a particular locality, but it may be accepted as a principle that vertical shoots may be taken off, all dead wood removed, and branches which have borne much in the preceding year cut back to allow more nutriment to pass to the others. Too many buds should not be allowed on any branches.

Picking.

Enemies of
the olive.

Like other fruit trees, the olive has many enemies. Besides the birds we have mentioned, who occasionally atone for their thefts by producing what we are pleased to call "self-sown oleasters," there are numerous insects which attack the fruit, the wood, and the leaves. The most dreaded of these is a small fly called the "*Dacus oleæ*," which is about half the size of a common house fly. It has a yellow head and green eyes, and an ashy-grey back with gossamer wings. The female has a spur like a wasp with which she punctures the fruit and deposits an egg in the lesion. It is calculated that a single fly will thus destroy three or four hundred olives. These eggs develop into larvae, which completely tunnel the olive, leaving nothing but the outer shell and the stone. In about a fortnight they assume the chrysalis stage, and about 10 days after that the perfect fly issues. This it will be seen displays an alarming fecundity combined with an extraordinary rapidity of reproduction, and in favourable seasons terrible damage is done. The only known remedy is to gather the fruit early, and by crushing it at once to destroy the larvae.

Dacus oleæ.

Coccus oleæ.

The "*Coccus oleæ*" is the enemy of the boughs and leaves. It is a parasite which at first sight appears to be a portion of the branch upon which it grows, and upon the sap of which it lives. It also develops a fungus which blackens the boughs. Lime washing and petroleum have both been tried with some measure of success against this pest.

Some growers burn damp straw under the trees in order to fumigate them and destroy insect life, but this must be done with great caution, as the olive is a tree from its nature very easily scorched, and very much damaged by scorching both in fruit and foliage. It is not desirable to allow lichen or moss to grow on the bark as it affords a refuge for parasites, and a home for the eggs of insects.

It is, however, reasonable to express the hope that the olive tree when introduced to its new home in the Antipodes will leave all these enemies behind it, and not find new ones to contend with, so that it may grow and prosper till it has bestowed wealth on the Australian continent in the same abundant measure as it has lavished it on the Italian Peninsula for so many centuries.

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ITALY.

MILAN.

Consul Armstrong to the Marquess of Salisbury.

(Received at Foreign Office, February 22, 1893.)

My Lord,

I HAVE the honour to submit to your Lordship a short Report containing a suggestion which, if carried out, would, I think, assist the development of British Trade with Italy.

I have, &c.
(Signed) F. ARMSTRONG.

A Suggestion for Increasing British Trade with Italy.

I frequently receive enquiries from manufacturers in the United Kingdom, often accompanied by samples or catalogues, as to the possibilities of doing business in Milan, and with a request that I should indicate to them firms of undoubted standing with whom they can put themselves in communication.

It is, of course, no part of a Consular Officer's business to take upon himself the functions of a commercial traveller, but, as is indeed my duty, I am always most willing to do all in my power to promote British interests, and, wherever it has been possible, I have shown the samples to persons engaged in that special line of business.

In the majority of cases my efforts have been met by the reply that the articles in question are chiefly dealt in by Swiss or German commission agents established in the city, who are obviously interested in discouraging any competition with the manufacturers of their own nationality, whom they represent.

It strikes me as extraordinary that while there are hundreds of German and Swiss commission agents in Milan—and their number is constantly increasing—there should not be, to the best of my knowledge, a single British firm of general commission agents in the whole of my district.

Surely, if the subjects of other countries find it to their advantage to establish themselves here, there should be room and advantage for British subjects to do likewise.

Milan is not only the capital of Lombardy, which, with a

population of more than 4,000,000, is the richest district in the kingdom, but it has also become, owing to its industrial and commercial pre-eminence, and to the concentration of railway communication with foreign countries, the great distributing centre for at least all North and Central Italy, so that houses established here enjoy, as a field for their operations, nearly the whole of the Peninsula.

It is true that Italy has made of late years great industrial progress, but this very fact has increased the demand for a variety of objects connected with the different processes of manufacturing, which Great Britain should be able to supply at least as well and as cheaply as any other country.

Add to this the fact that British goods still enjoy in Italy their old prestige, and that a dealer will always, whenever he can, assure his customers, as an inducement to them to buy, that such and such articles are of British manufacture, and I think it will be admitted that every means should be taken to develop our trade with a country whose population of over 30,000,000 is already so favourably disposed towards us.

I am glad to be able to avoid touching upon the thorny question of commercial travellers, for I know that, in the opinion of many people, Consuls attack this class as an easy way of explaining the falling-off in British trade abroad, and, with the greatest diffidence, I will ask whether it might not be worth while to try the experiment of establishing one or more commercial agencies in this, the commercial and industrial capital of Italy.

No appreciable amount of money would be required for carrying out such a scheme, and, consequently, little pecuniary risk would be incurred.

All that is necessary is that the individuals at the head of such agencies should inspire full confidence in the manufacturers whom they would represent, that they should possess a good knowledge of the Italian language, and that they should be thoroughly acquainted with the nature of the wares with the sale of which they would be entrusted. Perseverance, intelligence, and activity would do the rest.

Nor would it be necessary that such agencies should confine their operations to the sale of British products.

Italy produces many articles which can be advantageously imported into the United Kingdom or the colonies without competing with our own manufacturers, and a seller, who is also an important purchaser, has many facilities for pushing the sale of his own goods.

Some large British manufacturers—especially those engaged in the making of machinery or bicycles—have already representatives in Italy, but numberless other articles, in which Great Britain ought to be able to compete successfully, are now almost, if not entirely, excluded from the Italian markets owing to the presence on the spot of foreign rivals.

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1898.

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ITALY.

REPORT ON THE

DAIRY INDUSTRY OF ITALY.

*Presented to both Houses of Parliament by Command of Her Majesty,
MARCH, 1898.*

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ITALY.

FLORENCE.

Consul-General Chapman to the Marquess of Salisbury.

(Received at Foreign Office, February 14, 1898.)

My Lord,

HAVING been requested to supply information concerning the Dairy Industry of Italy, the enclosed Report has been prepared in this Consulate-General, and I have the honour to forward it to your Lordship.

I have, &c.
(Signed) W. PERCY CHAPMAN.

Report on the Dairy Industry of Italy.

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WEIGHTS and Measures.

1 kilogram	= 2·204 lbs. avoirdupois
1 litre	1·76 imperial pint
1 hectolitre	22 imperial gallons

According to the official statistics published by the Ministry of Agriculture, Industry, and Commerce for the year 1894 the total production and value of dairy products in Italy was in that year as follows:—

Total production in Italy.	Quantity.		Value.
	Kilos.		Lire.
Cheese	73,375,700		81,175,366
Butter	15,718,141		32,485,243
Ricotta	11,751,228		4,787,800
Milk, &c.. .. .	6,917,379		1,793,077
Total	107,757,448		120,241,486
Equiv. in sterling ..	..		£ 4,809,660

The production and value of dairy products in this Consular district in 1894 was—

Production in Consular district.	Quantity.		Value.
	Kilos.		Lire.
Cheese	11,325,580		13,728,312
Butter	2,457,472		4,969,126
Ricotta and other products ..	3,098,441		982,426
Total	16,879,493		19,679,864
Equiv. in sterling ..	..		£ 787,195

Prices.

The following table gives some particulars for the different provinces in this Consular district as well as the prices of cheese, butter, ricotta, and other products:—

PRODUCTION of Dairy Products in Consular District in 1894.

FLORENCE.

53

Consular District.	Cheese.			Butter.			Ricotta and other Dairy Products.			
	Quantity.	Average Price per Kilo.	Value.	Quantity.	Average Price per Kilo.	Value.	Quantity.	Average Price per kilo.		Value.
								Ricotta.	Other Products.	
	Kilos.	Lire c.	Lire.	Kilos.	Lire c.	Lire.	Kilos.	Lire c.	Lire c.	Lire.
Venetia, region of ..	7,347,677	1 14	8,404,334	1,923,401	2 05	3,937,179	2,454,160	0 40	0 11	778,144
In the region of Emilia—										
Modena, province of ..	813,498	1 13	916,438	235,647	1 84	432,672	167,939	0 19	0 05	21,966
Ferrara " ..	49,750	1 42	70,435	13,850	1 94	26,645	18,320	0 74	0 25	9,131
Bologna " ..	471,137	1 07	508,347	182,868	1 96	357,743	117,098	0 26	0 18	29,051
Ravenna " ..	74,885	1 02	76,508	550	2 80	1,540	3,385	0 41	..	1,382
Forli " ..	204,815	1 28	261,197	2,460	2 28	5,599	8,625	1 12	0 28	8,108
In the Marche—										
Pesaro ed Urbino, province of ..	463,086	1 57	737,904	1,775	2 06	3,656	18,908	0 50	0 23	7,131
Ancona, province of ..	314,300	1 77	556,730	275	2 40	660	28,155	0 23	..	6,437
Tuscany (with the exception of the province of Massa) ..	1,588,482	1 39	2,211,424	96,646	2 10	203,432	272,931	0 47	0 35	120,476
Total ..	11,825,680	..	13,728,812	2,457,472	..	4,969,126	3,096,441	..	..	982,426

Total exports. In the above year the total exports from Italy amounted to 12,729,200 kilos., in the following year they were about the same, 12,742,600 kilos., and in the year 1896 they reached 13,475,000 kilos.

Exports to Great Britain. From the custom-house returns for 1896 I was able to obtain the following data on the exports that took place in that year to the United Kingdom, showing that one-third of the total exports go to Great Britain.

	Quantity.		Value.	
	Kilos.		Lire.	
Cheese	2,172,300		3,258,450	
Butter, fresh	146,500		336,950	
" salted	1,805,600		4,243,160	
Milk. &c... .. .	634,000		1,077,800	
Total	4,758,400		8,916,360	
Equiv. in sterling ..	..		£ 356,654	

Cheese.

The cheese which is chiefly produced in Italy is the "grana" (or Parmesan cheese) so-called from its granulated texture, next comes the "gorgonzola," "emmental," and "stracchino" of Lombardy, the "fontina" of the valley of Aosta, and the "cacio cavallo" of Rome and Southern Italy. The latter is, however, produced on a small scale also in Lombardy. In shape grana cheeses are round, have an average depth of 20 centims. and a diameter of 60 centims. Those produced at Parma, Reggio Emilia, and Modena weigh from 20 to 60 kilos. with an average of 36 kilos. In Lombardy the cheeses weigh from 50 to 70 and even 90 kilos.

One hectolitre of milk yields from 5.50 to 5.85 kilos. of cheese, and 2.25 to 2.50 kilos. of butter. Grana cheese cannot be exposed to an elevated temperature without injury, yet it stands long journeys if properly packed.

Ricotta, how produced.

The whey that remains after the cheese is made is generally utilised in Italy to make the ricotta which is produced in the following manner. The whey is heated up to 80° C. and worked up with the "follatoio," a long stick to the end of which a round wooden disk is affixed. In less than an hour the ricotta appears on the surface of the liquid and is collected and placed in baskets to dry. The ricotta is either eaten fresh or else is salted and dried in the oven when it is used by the peasantry as cheese.

Principal centres of production.

The principal centres of production are the provinces of Milan (Milan, Lodi, Codogno), Como (Lecco), Pavia, Reggio Emilia, Parma, Belluno, Modena, in the north of Italy where abundant pastures for the feeding of cattle are always available.

Lodi. Number of dairies, production, &c.

According to the Chamber of Commerce of Lodi there are in that district 509 dairies employing annually about 851,402 litres of milk for making cheese and butter. The following is the average quantity produced in one year in that district:

					Quantity.
					Kilos.
Butter	..	..	..	..	1,919,630
Grana cheese	..	..	..	..	4,482,700
Emmenthal	..	..	..	..	177,500
Cacio cavallo	..	..	..	..	387,200
Stracchino	..	..	..	..	407,700
Total	..	..	..	..	7,324,730

There is also in Lodi a Government Experimental Dairy (R. Stazione Sperimentale di Caseificio) which was started as a purely scientific experiment more particularly intended for the analysis of milk with a view to improving the manufacture of cheese. Government experimental dairy of Lodi.

In 1891 there were in the province of Pavia 313 dairies giving employment to 877 hands producing annually about 2,330,553 kilos. of cheese, 881,580 kilos. of butter, and 28,905,997 kilos. of other dairy products.

In the same year there were in the province of Belluno 133 dairies employing 290 hands producing annually 255,955 kilos. of butter, 547,726 kilos. of cheese, 261,377 kilos. of ricotta. Belluno.

In the year 1894 there were in the province of Modena 166 dairies employing 387 hands. The following table shows the total production in this province in the years 1891-94:— Modena.

		Quantity.			
		1891.	1892.	1893.	1894.
		Kilos.	Kilos.	Kilos.	Kilos.
Cheese	..	1,116,950	952,489	1,091,669	813,498
Butter	..	308,270	316,169	268,725	236,647
Ricotta	..	249,760	227,220	214,184	199,529
Other products	..	75,050	81,500	7,200	68,400
Total	..	1,750,030	1,577,378	1,581,778	1,317,074

No data could be obtained for the other districts.

I could not obtain much information about the sanitary condition under which the milk is produced. Generally speaking it is not excellent in Italy, yet it may be less unsatisfactory where the production is obtained on an extensive scale, by scientific methods, and the cows are fed on the pastures. Sanitary condition of cattle. General remarks.

With reference to Lodi, the district I have already referred to above, the Chamber of Commerce reported to me that the sanitary condition of cattle is satisfactory, and that tuberculosis is not very frequent in that district. This statement is however to be accepted with some reserve. Lodi district.

The chief inspector of the slaughter-house at Milan, to Milan district.

whom I had also applied on the subject, furnished me with the following table, showing the number of animals suffering from tuberculosis which were slaughtered at his establishment in 1896.

Cattle
slaughtered at
Milan.

	Total Slaughtered.	Affected with Tuberculosis.	Percentage affected with Tuberculosis.
Bulls	772	11	1.42
Oxen	9,881	80	0.81
Cows	22,506	1,700	7.55
Heifers	1,151	37	3.21
Calves	50,917	8	0.00015

Cows affected
with
tuberculosis.

The inspector adds that one-fifth of the above, 22,506 cows, came from the irrigated plains near Milan, where the tuberculosis exists in the proportion of 26.30 per cent.

In the previous year (1895) the proportion of cows affected by tuberculosis slaughtered at his establishment was 8 per cent. of the total number of cows, and 27 per cent. of the cows coming from the Milanese plains.

Sanitary
condition
under which
milk is
produced.

If we consider that said plains constitute one of the principal centres of milk production, we can infer that the sanitary condition, at least in that district, leaves much to be desired.

More satisfactory is the sanitary condition of cattle in Florence according to the following official returns obtained from the Municipality of Florence.

Animals
slaughtered at
the Florence
slaughter-
house in
1897.
Proportion of
animals
affected by
tuberculosis.

NUMBER of Animals Slaughtered at the Public Slaughter-house in Florence during 1897.

	Number.	Affected by Tuberculosis.
Oxen	1,411	} 88
Cows	642	
Heifers	21,272	
Calves	10,498	

These figures may be under the mark, but are official, and probably represent the most serious cases.

It is also presumable that inferior cattle is not always brought to the public slaughter-house at Florence, where the surveillance is constant and rigorous, but may be preferably slaughtered in other communes in the country district.

The adulteration of dairy products is not complained of in Italy. The Director of the Royal Experimental Dairy of Lodi, referred to above, to whom I also applied for information on this point, reported to me that it is very limited.

Adulteration
of dairy
products very
limited.

There is no special law here as in England for the protection of the dairy industry, except a law dated July 19, 1894, which regulates the sale of the surrogates of butter and prohibits and punishes the adulteration of butter with margarine. Besides that law there is a special service of surveillance in the principal cities and public officers for the chemical analysis of all alimentary products. Law regulating the sale of the surrogates of butter.

Generally, no preservative is employed but common salt, which is added to butter when exported. Some large exporters of Venetia and Lombardy, however, employ a special salt obtained from the mines of Lungro (Calabria Citeriore), which, although more adapted than common salt, is said to be still inferior to the salts of Egestorff, Lüneburg, Stade, and Linden, employed abroad for foreign cheeses of a superior quality. Its chemical composition is the following :— Preservatives. Lungro salt.

LUNGRO SALT.*

Result of
Analysis of
Lungro salt.

				Per Cent.
Chloride of sodium	..	..	..	97.69
Sulphate of calcium	..	..	..	0.06
Chloride of magnesia	..	..	..	0.05
„ calcium	..	..	..	0.15
Sulphate of sodium	..	..	..	1.40
Water	..	..	..	0.21
Insoluble matter	..	..	..	0.44

* This salt is found in blocks and ground for use.

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ITALY.

REPORT ON FLORENCE, ITS ADMINISTRATION
AND INSTITUTIONS.

*Presented to both Houses of Parliament by Command of Her Majesty,
JUNE, 1898.*

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1898.

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NOTE.—The lira has, in this report, been calculated at par (25 lire to 1l.); the present rate of exchange is, however, 27·30 lire to 1l. The metric system of weights and measures prevails in Italy, but the English equivalents have in all cases been given in this report.

Report on Florence, its Administration and Institutions

By MR. CONSUL-GENERAL CHAPMAN.

(Received at Foreign Office, May 17, 1898.)

The commune of Florence has a population of 194,631 souls and is situated on the plains in the valley of the Arno. The greater part of the city lies on the right bank of the river and is bound on the north by the spurs of the Apennines and on the south by a series of picturesque hills. Geometrically it may be represented by a circle of a radius of 3,281 yards, the communal offices lying at $56\frac{1}{2}$ yards above the level of the sea. General remarks and sanitary condition of Florence.

The temperature of Florence is subject to considerable and sudden variations even during the daytime. It averages annually $58^{\circ} 1'$ with a maximum of $103^{\circ} 1'$ and a minimum of $12^{\circ} 2'$. Climate.

Fog is not unfrequent in winter but it is rarely very dense. It is reckoned that there are in Florence 107 rainy days during the year, the average annual rainfall being calculated at 35.618 inches. For a long period of years the maximum number of successive rainy days was 23. Snow is rather unusual; hail-storms generally accompanied by rain may average 6 per annum. There are about 80 days in the year of rather strong winds predominating in winter from N.E. and S.W., and in summer from W. and N.W.

The communal territory is crossed by the River Arno and by the torrents Terzolle, Mugnone, and Affrico, its affluents. The River Arno rises from the southern slopes of Mount Falterona in the province of Arezzo at 1,483 yards above the level of the sea, enters the province of Florence at its south-eastern corner near Figline, crosses the commune and the city of Florence and leaves the province on its western confines near Pontedera. The difference of level between low and high water within the city is $11\frac{1}{2}$ feet. The volume of water is very variable. It is very small during 27 days, small during 45 days, medium during 246 days, in flood during 47 days. River Arno.

No less than 54 inundations of the Arno occurred between 1177 and 1761, 30 of which, especially those of 1333 and 1457, proved exceedingly disastrous. The last one took place in 1864. The construction of large sewers and the raising of the banks has since averted the renewal of these disastrous events.

The Arno is provided with two water-gates (chiuse); the upper one near the Porta S. Niccolo furnishes the hydraulic power for (187)

lifting the drinking water from the subfluvial galleries to the reservoirs, the other provides through a canal the motive-power for the Government tobacco mills at the Cascine. The Arno is navigable for small boats from the landing stage at the Pignone below the town to the sea, and is especially used for the conveyance of timber from the woods of Vallambrosa which are floated down the river.

The length and average breadth of the Arno, and of the torrents Mugnone, Terzolle, and Affrico within the town are as follows :—

					Length.	Breadth.
					Yards.	Yards.
Arno	..	..	..	..	9,077	142
Mugnone	..	..	..	..	8,918	13½
Terzolle	..	..	..	..	2,625	17
Affrico	..	..	..	..	4,808½	4

There are within the commune no marsh lands or stagnant waters.

Streets.

The streets of the city have in the new quarters an average breadth of 39 and 46 feet, some exceed 49 feet and are almost all paved with stone. Their total area including the squares is, within the walls, 941,252 square yards; outside the walls, 1,831,076 square yards.

Drainage.

The drainage is provided for by numerous large sewers leading to three mains which discharge into the river.

Cleaning.

The cleaning of the streets is leased out to private firms, under communal regulations, the depôts being situated away from the town.

Houses.

Houses are rarely more than three stories high except the new buildings of the centre, some of which are four-storied.

Price of building sites.

The following is the price per square yard of building land within the city :—

In—				Price per Square Yard.	Remarks.
				£ s. d.	
1855	..	..	..	0 11 0	Lungarno
1856	..	..	..	0 6 8	Streets adjoining the Lungarno
1857	..	..	..	0 4 0	
1861	..	..	..	0 6 2	Prolongation of via Nazionale
1862	..	..	..	0 5 4	Central; quarter del Maglio, at present piazza d'Azeglio
1863	..	..	..	0 4 0	Via Cavour
1864	..	..	..	0 2 8	In and near via Sebastiano, at present via Gino Capponi
1875	..	..	..	0 4 8	Via Leopardi
				3 6 2	In the centre of Florence
				1 0 0	On the boulevards (viali)
1888	..	..	{	6s. 8d. to 13s. 4d.	Adjoining the boulevards
				3s. 4d. to 6s. 8d.	In the suburbs

Since 1888 prices have remained unvaried if not decreasing.

In 1882 the average annual rent paid for unfurnished apartments is calculated to have been 4*l.* per room for well situated and good apartments in the best quarters, 2*l.* per room in medium localities, and 1*l.* in quarters inhabited by the poor. In 1888 the rent of an apartment consisting of six well-aired rooms, including kitchen and excluding small entrance room, was 20*l.* per annum in a quarter inhabited by the middle classes, the rent of a similar apartment in a quarter inhabited by the working class was quoted 10*l.* 16*s.* In the years 1890-91 house rents considerably increased, varying between 20*l.* and 24*l.* in the good and between 10*l.* and 12*l.* in the inferior quarters. These prices were steady until 1894 when rents began gradually to decline, and at present (1898) they are about the same as in 1888, still showing a tendency to diminish owing to the existence of numerous new buildings in the suburbs and adjoining the boulevards.

The usual food of the Florentine working classes consists of wheat bread and beef, the latter being only used to a very small extent among the poor, followed by vegetables, fruit and milk. Haricot beans are abundantly eaten, either boiled and seasoned in oil or else passed through the sieve and put in the soup. Pork is not much used except salted; cod and stockfish is eaten to a great extent. Wheat paste is generally employed for soup. Wine is drunk by all classes.

Further on in this report, when speaking of "markets," the quantity of the principal elementary provisions entered into the town during 1896, and the annual consumption of each article per inhabitant will be given.

There are about 210 tobacconists, 169 public-houses, and 1,303 shops for the sale of wine, spirits, and liquors. With some rare exception, no abuse of the latter is complained of.

Vaccination upon cattle is never practised. On children it is gratuitously effected all the year round, twice a week in the months of May and September and once a week in the other months, in a room adjoining the Foundling Hospital, with human lymph. For the first inoculations the lymph is obtained directly from Milan and Rome. The re-vaccinations are rare except among military men.

Tinea and scabies are almost unknown in the town, but not very unfrequent in the suburbs. Eye diseases, especially scrofulous inflammations of the cornea and granular conjunctivitis, once so common in Florence, are gradually disappearing, owing to the improvement of the general sanitary conditions of the city. Pneumonia is rather frequent in December and January, and consumption is very prevalent (annual average death rate 651); tænia is very rare, pellagra quite unknown in the town. No case of smallpox has occurred since 1887. No malaria exists in Florence.

Florence is endowed with 10 hospitals, one foundling asylum, four orphanages, and many charitable foundations, for which see "benefit societies," page 26.

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Births,
marriages,
and deaths.

In the year 1896 the proportion of births, marriages, and deaths for every 1,000 inhabitants, on the total population of 194,631, was of 24·57, 6·48, and 21·85 respectively, the births exceeding the deaths by 2·72 for every 1,000 inhabitants.

In 1881, the population being rated at 164,460 souls, the proportion of births for every 1,000 inhabitants was of 28·93, of marriages 8·17, and that of deaths of 28·06, the births exceeding the deaths by only 0·87 per 1,000.

While during the 16 years, 1881-96, the population increased by 30,171 souls, the proportion in the number of births and deaths considerably diminished, the first being inferior by 4·36 and the second by 6·21 per 1,000 in 1896, against those for 1881.

This low rate of births in Florence is confirmed by comparing the average proportion of births and deaths which occurred in this commune during the 16 years mentioned above with similar averages for the whole kingdom:—

				Per 1,000.	
				Births.	Deaths.
Florence..	..	..	..	26·96	26·07
Kingdom..	..	..	..	38·	27·

The following table gives the proportion between the number of marriages and births in the principal Italian and foreign cities:—

Table I.—NUMBER of Births to each Marriage in the Principal Italian and Foreign Cities.

ITALIAN CITIES.

				1896.	1895.	1894.
Alessandria	..	..	..	4·46	3·98	4·68
Bari	..	..	..	5·02	..	..
Bologna..	..	..	..	3·10	3·00	3·08
Cagliari..	..	..	..	3·96	4·19	3·72
Catania..	..	..	..	4·56	..	4·60
Ferrara..	..	..	..	3·86	4·28	3·60
Florence	..	..	..	3·14	2·87	2·95
Genoa	..	..	..	3·81	4·33	4·04
Leghorn	..	..	..	..	3·28	3·07
Lucca	..	..	..	3·69	3·28	..
Messina..	..	..	..	4·58	5·22	..
Milan	..	..	..	3·65	3·47	3·87
Naples	..	..	..	4·00	3·95	..
Padua	..	..	..	3·90	4·08	..
Palermo..	..	..	..	4·89	4·64	4·99
Rome	..	..	..	3·36	3·64	3·70
Turin	..	..	..	3·48	3·22	3·24
Venice	..	..	..	4·01	4·18	3·96
Verona	..	..	..	3·68	3·46	..

FOREIGN CITIES.

	1896.	1895.	1894.
Trieste	3.2	3.4	3.3
Malta	..	6.1	..
Vienna	2.1	2.1	2.2
Prague	..	..	1.7
Berlin	2.2	2.3	..
Hamburg	3.2	3.3	3.3
Leipzig	3.3	3.5	3.5
Munich	2.4	2.4	2.4
Breslau	3.0	3.1	3.1
Dresden	2.6	2.5	2.6
Amsterdam	3.9	4.0	4.3
Copenhagen	2.7	..	..
Stockholm	..	..	2.7
Paris	1.8	1.7	1.9
Lyons	2.0	1.9	2.1
Brussels	1.5	1.6	1.8
Warsaw	3.7	3.3	3.6
Buenos Ayres	..	4.2	4.4
New York	2.7	..	3.1

In 1896 the total number of deaths amounted to 4,254; of these 683 were of people that did not belong to the commune, so that the proportion of deaths calculated on the population of December 31, 1895, was of 22.10 per 1,000 on the total number of deaths, and 18.55 on the number of the inhabitants belonging to the commune. A lower rate in the total number of deaths was never reached in Italy by any other city except Turin (19.04), and out of Italy only by London (18.65), Brussels (21.75), Hamburg (20.80), and Berlin (19.48). Deaths in Florence.

The great improvement attained in the sanitary condition of Florence since 1881 is apparent also by the fact that with an increased population during that period of 30,171 souls, the death rate for 1896 was lower by 361 deaths than that of 1881, and by 427 deaths than the annual average for the whole period; the proportion of deaths is also diminished by 6.21 per 1,000 on the deaths of 1881, and by 4.22 on the average annual death rate for every 1,000 inhabitants.

Table II. gives the total number of deaths in the commune during the period 1881-96, as well as the deaths which occurred from epidemics and infectious diseases Epidemic and infectious diseases.

Table II.—MORTALITY of Florence during the Period 1881-96.

Year.	Population on December 31.	General Mortality.			Special Mortality.						
		Total.	Deaths per 1,000 Inhabitants.	Small- pox.	Scarlet Fever.	Chicken- pox.	Typhoid Fever.	Diph- theria.	Tuber- culosis.	Total.	Proportion per 1,000 Inhabitants.
1881 ..	164,480	4,615	28.06	50	17	33	202	68	704	1,074	6.53
1882 ..	166,072	5,009	30.16	86	93	26	166	59	765	1,195	7.19
1883 ..	168,157	4,997	29.72	23	9	83	152	53	841	1,166	6.93
1884 ..	171,045	4,288	20.78	3	1	57	112	55	631	859	5.02
1885 ..	173,063	4,625	26.72	1	2	71	179	30	999	999	5.77
1886 ..	174,947	4,734	27.06	11	9	34	209	29	954	954	5.45
1887 ..	176,189	5,493	31.12	292	86	83	133	54	688	1,336	7.58
1888 ..	178,342	4,616	25.88	34	5	24	182	39	977	977	5.48
1889 ..	180,516	4,323	28.96	5	5	40	100	21	632	802	4.44
1890 ..	182,534	4,662	25.54	1	5	14	136	31	675	862	4.72
1891 ..	184,321	5,065	27.48	..	6	54	286	35	621	1,002	5.44
1892 ..	186,015	4,936	26.86	1	5	83	88	63	623	863	4.64
1893 ..	188,907	4,404	28.31	..	1	17	88	99	575	780	4.13
1894 ..	190,797	4,580	24.11	..	5	42	60	69	530	706	3.70
1895 ..	192,432	4,437	23.05	1	17	5	55	34	562	674	3.50
1896 ..	194,631	4,254	21.85	1	8	38	62	27	496	632	3.25
Total ..	..	75,048	..	509	273	704	2,210	771	10,414	14,881	..
Average ..	179,580	4,680	26.12	32	17	44	138	48	651	980	5.18

Table III.—DEATH-RATE of Florence and of some other Italian and Foreign Cities for the Year 1896.

Name of City.	Population on December 31, 1895.	Number of Deaths			Proportion per 1,000	
		Of People belonging to the Commune.	Of People not belonging to the Commune.	Total.	On the Total Number of Deaths.	On those belonging to the Commune.
Florence	192,482	3,571	683	4,254	22·20*	18·56*
Turin	314,203	5,913	640	6,553	19·04	17·18
Milan	453,500	8,626	1,513	10,139	23·46	19·02
Leghorn	103,418	2,029	110	2,139	20·68	19·62
Genoa	211,151	4,458	428	4,886	23·14	21·11
Bologna	149,088	3,349	385	3,734	25·04	22·48
Venice	163,254	3,770	313	4,083	25·01	23·49
Palermo	282,698	...	...	6,659	23·56	...
Naples	545,860	11,849	1,217	13,066	29·94	27·20
Catania	118,992	3,182	142	3,324	28·66	27·43
London	4,381,119	...	...	81,719	18·65	...
Brussels	190,313	3,592	547	4,139	21·75	18·87
Berlin	1,678,687	...	...	32,696	19·48	...
Paris	2,511,629	43,143	2,676	50,719	20·19	19·16
Hamburg	526,874	10,666	303	10,969	20·80	20·22
Vienna	1,511,114	33,088	1,044	34,132	22·59	21·80

* The considerable difference between the total number of deaths in Florence and the deaths of persons belonging to the commune (the first exceeding the second by 3·55 per 1,000) is explained by the fact that the Central Hospital receives a large number of patients from all the other communes of the province, and that Florence being a desirable residence for many foreigners in quest of health, some of them, of course, too ill when they come, die in this city.

The circumference of the city walls, which of old was 6, is at present 9 miles (octroi boundary), 15½ miles being the circumference of the whole communal territory. This placing of the population on a wider area has undoubtedly caused beneficial effects on public health as, while it has, on the one hand, diminished the agglomeration of the population in the old streets and houses, and by so doing lessened some causes of insalubrity, it has, on the other, induced the greater part of the lower classes to inhabit the newer and healthier houses in the suburbs and in close proximity to pleasant hills.

This low density of population as well as the large area occupied by public squares, gardens, boulevards, &c., are the two principal factors of public health. Those who recollect what Florence was 50 years ago can only adequately appreciate the great improvements made in this city during that period. The via Gora once occupying part of the present via Montebello, the Camaldoli of S. Lorenzo, pulled down for the erection of the central market, San Frediano and San Niccolo, now partly improved, and the Ghetto, also pulled down, were the receptacles of dirt and misery. Hundreds of families lived and died there without ever coming out of those filthy and narrow streets. The public slaughter-house was situated within the city walls. There were no public closets, houses were unprovided with pipes to receive the rain from the roofs, with the result that on rainy days the water noisily poured into the public streets, flowing in large rivulets along the same; the sewers, too small to receive the drains, caused large puddles in many places in the town; moreover, being connected with the

Florence, fifty years ago.

river, within the gates, they overflowed during heavy rains, inundating whole streets. No drinking water was available but that of the wells, the supply of the Monterecci aqueduct being insignificant; and the soil was continuously contaminated by the filtrations of cesspools and old sewers. This state of things, which had existed for centuries, has for some years entirely ceased.

Drainage.

At present the drainage of the town, if not always that of the houses, is good; the water supply will soon be, by the new project, one of the best in Italy: lurid and narrow quarters which were a den of infection, have almost all disappeared under the pick of industrial contractors, who have erected in their place large buildings with all modern comforts; small airy houses for the poor have also in many suburban quarters been erected. It is also to be hoped that the law of December 22, 1888, on hygiene, instituting a special sanitary department attached to each municipality, prescribing special provisions for house-building, for public disinfection, for the sequestration of unwholesome and adulterated alimentary products, and a special and strict surveillance on all matters concerning hygiene, will permanently secure to Florence the full fruits to be obtained through the above improvements as far as public health is concerned.

Medical practitioners.

The number of medical practitioners in Florence is 282, viz., one for every 690 inhabitants, which is said to be greatly in excess to the wants of the population. This superabundance of medical men is not unusual in cities which, like Florence, are seats of universities of medicine.

Foreign medical men.

The number of foreign doctors is 14, of whom three are English. Any foreign doctor desirous to practise in Florence or in any other commune in Italy, is first bound to exhibit to the Office of Hygiene at the Municipality his diploma for inspection, after which he will be duly authorised to practise among foreigners.

No foreign doctor is allowed by law to practise among Italians unless he is provided with a degree of an Italian university. This provision has, however, hitherto been often violated in practice.

A proposal was lately brought before the Italian Parliament by the initiative of the Italian profession that foreign practitioners should be prohibited from practising in Italy even among their own countrymen unless they first obtained a diploma in one of the Italian universities. It was even proposed to make the regulation retrospective, thus depriving physicians already residing in the country of the rights they had hitherto enjoyed. This caused an address to be presented to the Syndic of Florence by the three British medical men practising in that city, calling attention to this fact, and pointing out that the diploma held by them, the result of prolonged and laborious studies, had been recognised by the municipal officer of health and duly registered as authorising the holders to practise their profession in Florence. It was further urged that any diminution or withdrawal of the rights now possessed by foreign physicians would diminish the number of English residents, as those English visitors who would come to

Florence in quest of health would be deterred from doing so if they knew they could no longer find English physicians there. The Syndic fully appreciated the arguments set forth by the applicants, and expressed his concurrence with the substance and bearings of the address, and said that the matter should have his consideration, and, if desirable, be referred to the Ministry of Public Instruction.

I may also point out that the British medical men generally meet with difficulties on registering their diplomas at the Municipality of Florence in order to obtain the necessary licence, on account of the fact that degrees issued by English licensing bodies bear no testimony as to the holder's competency in the subject of proficiency in which the diploma is issued. In a particular instance a London University Degree was objected to because it did not set forth that the holder was qualified to practise medicine, surgery, and midwifery. The same remark was applied to a M.R.C.P. diploma.

The transfer of the capital to Rome in 1871 had left the city of Florence with a debt of about 5,600,000*l.*, with a decreasing population and a great depression in trade. The commune could not avoid suspension of payment of the interest on its debts, which took place on June 18, 1878. A Royal Commission for the management of the affairs of the city was then appointed, and they completed their work in August, 1879, after having drawn up a scheme for the gradual settlement of the same. To effect that the commune issued in 1880 a 3 per cent. loan for 2,160,000*l.*, to be extinguished by half-yearly drawings, and paid-up old creditors with 5 per cent. consolidated rente in the proportion of 49 per cent. of their credit and communal bonds of above loan in the proportion of 51 per cent. These bonds, subject to income tax, give at present a net interest of Italian lire 2.26 per cent., and are greatly sought for. They were lately quoted at 65 lire (2*l.* 12*s.*). Finances of
the
commune.

In consequence of the above-mentioned drawings the loan was reduced on December 31, 1897, to 1,887,600*l.*, of which the commune itself withdrew and annulled to the amount of 465,528*l.*, so that the bonds now in circulation amount only to 1,422,072*l.*, which represents the present debt of the city.

Although Florence lost the privilege of being the capital of the Kingdom, in less than 20 years the commune has been able to reduce its debt from 5,600,000*l.* to 1,422,072*l.*, and to construct or complete many public works of importance.

The following table gives the balance-sheet for the year ending December 31, 1896, in comparison with 1882:—

Table IV.—BALANCE-SHEET of the Commune of Florence for the Year ending December 31, 1896, in comparison with 1882.

REVENUE.

	Amount.	
	1896.	1882.
	£	£
Income from communal property (movable and immovable)	22,583	6,664
Various receipts	5,339	3,682
Taxes and fees (including school taxes and taxes for licences for occupying public space, on weights and measures, on slaughtering animals, &c.)	338,712	293,827
Extraordinary revenue (Government subsidies, fines, legacies and gifts, &c.)	1,711	11,310
Total	368,345	315,483

EXPENDITURE.

	Amount.	
	1896.	1882.
	£	£
Interest on debts, income tax, &c. ..	52,298	289,363
General expenses	85,923	
Police and hygiene	78,942	
Public safety and justice	10,055	
Public works	69,699	
„ instruction	34,301	289,363
„ charity	14,616	
	345,834	289,363
Balance	22,511	26,120
Total	368,345	315,483

The proportion per head of the population of the annual expenditure incurred by the commune, calculated on the estimate for 1895, amounted, for public works, to 5s.; for all the other expenses, 1*l.* 9*s.* 10*d.*; for the total expenditure, 1*l.* 14*s.* 10*d.*

Table V.—GOVERNMENT and Communal Taxes Collected at Florence in 1896.

	Agio, owing to Collector.		Chamber of Commerce and Rifle Shooting Association.		Government Tax.		Provincial Tax.		Communal Tax.		Total (Agio Included).
	Lire	c.	Lire	c.	Lire	c.	Lire	c.	Lire	c.	
House tax ..	57,816	17	..	..	2,468,182	72	854,662	06	2,463,751	23	5,844,412 18
Land ..	1,862	92	..	..	73,161	89	29,420	11	84,862	95	189,307 87
Income ..	102,334	42	..	..	10,438,110	69	15,350	18	..	..	10,555,795 29
Family ..	4,273	23	..	..	..	..	..	..	427,322	15	431,595 38
Trade ..	894	41	..	..	..	..	..	..	89,441	92	90,336 38
Tax on carriages and servants ..	671	61	..	..	..	..	..	..	67,162	16	67,833 77
" public carriages ..	103	63	..	..	..	..	..	..	10,363	00	10,466 63
" boats ..	1	56	..	..	..	..	..	..	156	32	157 88
Chamber of Commerce tax ..	422	47	42,246	72	..	..	..	..	..	..	42,669 19
Rifle Shooting Association ..	50	43	5,043	57	..	..	..	..	..	..	5,094 00
Total ..	168,430	85	47,290	29	12,978,455	30	899,432	35	3,143,059	73	17,236,668 52
Equiv. in sterling ..	6,737	..	1,891	..	519,138	..	35,977	..	125,722	..	689,467
Octroi duty ..	..	..	..	..	3,232,234	89	..	..	3,708,898	96	6,991,133 85
Equiv. in sterling ..	..	..	..	..	131,289	..	..	..	148,356	..	279,645
Total in sterling ..	6,737	..	1,891	..	650,427	..	35,977	..	274,078*	..	969,112

* Exclusive of scholastic and other minor taxes and fees to the total amount of 64,634.

Police.

The police force consists of —Communal guards, 188; city guards, 180; gendarmes detailed for police service, 50; total, 418.

The first belong exclusively to the municipality, under the orders of a commanding officer, are militarily organised and recruited among men who have served in the army, for a four years' enlistment. Their duty is to look after the public observance of communal and State laws, to repress any public violation of the same, and assist with the other corps in the maintenance of public order. They are always in uniform, are armed with revolver and short sword, and in public ceremonies have, as when on sentry, a rifle. The annual salary paid to ordinary guards does not exceed 1,200 lire (48*l.*) with a small extra allowance at the end of the year. The commander receives 96*l.*

The corps of the city guards, formerly called "Guardie di Sicurezza," is governmental, under the immediate dependence from the R. Questore or superintendent of police. The guards are appointed by Ministerial Decree, and must enlist for five years. From 20 to 30 men selected from among the most adapted constitute a troop of detectives ("squadra mobile") for investigation purposes, political police service, &c. They always dress in mufti.

There are also five branch offices within and two outside the city.

The salary of the guards is from 44*l.* to 52*l.*

There is also a legion of carabinieri or gendarmes, commanded by a colonel, 40 or 50 among these are detailed for police service, investigation, patrolling in the suburbs, &c., and are distributed in seven stations in various localities of the city.

Fire brigade.

The "Corpo dei Pompieri," whose duty, besides extinguishing fires, is to render salvage and other public services, and whose excellent organisation, complete equipment, and discipline have made it so popular in Florence, is organised on a military footing under the command of Cavaliere Alessandro Papini, and under the direct superintendence of the Municipal Assessor for Public Works. It consists of a commanding officer, two accountants, six sergeants, 12 corporals, 80 men, and 10 apprentices. A small brass band formed from those among the firemen who can play when they join is attached.

In day time a detachment of 32 men is always in attendance on the premises ready for starting with their hose carts at a call, 39 men being ready at night.

The corps is furnished with 15 hose carts, two large steam fire engines (Shand, Mason and Co.), one small steam fire engine (Merryweather and Sons), three long scaling ladders, two respiratory apparatuses, fire escapes, salvage boats, portable telephones, vans, 13 horses, and many minor appliances.

Twice a month the whole of the corps is called out for drill, gymnastics, &c.

Ordinary drill is also practised daily on the premises (arsenal).

Fires.

The number of fires which occurred in Florence in 1897 was not less than 108, having resulted in damage to the amount of

26,486*l.*, of which 385*l.* was without insurance. Twenty of the above fires were extinguished by means of hose-carts, and five by steam engines. In the remaining 83 cases local water-pipes were resorted to without necessity of pumps.

Besides extinguishing fires the *Pompieri* are expected to render, in case of necessity, almost any other public service, particularly any implying danger or requiring some gymnastic aptitude. They are called to check inundations outside the commune and to salvage therefrom, are entrusted with the surveillance of the river in case of flood, attend to salvage in the Arno, are called when required to remove ruins and obstacles to public transit, whenever called by anyone having accidentally shut himself out of the house without key they enter the house through a window by means of their ladders, are resorted to in case of breakage of water and gas-pipes, transport the wounded to the hospitals, convey corpses to cemetery, &c. In public solemnities they form the municipal guard of honour.

Florence is provided with three provision markets, which Markets. consist of public spaces for wholesale, and of three stone halls covered with glass for retail produce. The latter consist of two flats. The higher flat, which is a little above the street level, contains the accommodation for sale; the lower flat, underground, provides the storage, troughs, ponds, ice-houses, &c., for the preservation of alimentary products sold in the market.

The space in the Central Market Hall is divided into 352 small allotments, some open and some enclosed by wire, including a separate section for fishmongers for whom special accommodation well-supplied with water is provided.

The other two halls consist of 80 divisions, each with accessory accommodation underground.

These three halls have been in use since 1881, the central one only doing well, the other two doing very little business.

The total municipal revenue out of these markets fluctuates Revenue. between 2,600*l.* and 3,000*l.*, at an annual cost of 720*l.*

The following table gives the area of the three markets:—

TABLE VI.

	Area in Square Yards.	
	Covered.	Uncovered.
Central market	6,000	2,775
S. Ambrogio	1,550	9,962
S. Frediano	1,550	6,626
Total area	9,100	19,363

The following table shows the quantity of provisions entered into the town during 1896, and the annual consumption of each article per head of population:—

TABLE VII.

				Total Quantities Entered.		Consumption Per Head of Population.
						Lbs. Avoir.
Wine and vinegar	..	..	Gallons	5,570,597	}	362·173
„ in bottles	..	..	Number	76,301		
Spirits and liquors	..	..	Gallons	76,094		5·574
„ in bottles	..	..	Number	38,260		
Beer	..	..	Lbs. Avoir.	602,800		..
Cattle	..	..	..	11,183,260	}	see Beef
Swine	..	..	..	934,120		6·750
Beef	..	..	..	1,972,080		79·234
Sheep and lambs	..	..	..	1,127,280		7·90
Pork, salted	..	..	..	770,000		4·849
Wheatmeal and flour and other meals	..	..	..	26,079,020	}	271·841
Bread	..	..	..	13,078,340		see wheat-
Pastes	..	..	..	3,979,800		meal, &c.
Rice	..	..	..	1,156,820		7·280
Fish, fresh	..	..	..	881,980		5·552
„ pickled, salted, &c.	..	..	..	1,043,680		6·607
Olive oil..	..	..	..	3,418,580		21·526
Milk	..	..	..	12,968,560		83·114
Butter	..	..	..	748,440		4·838
Cheese	..	..	..	1,146,640		7·207
Eggs	..	..	..	2,564,320		16·146
Vegetables	..	..	..	43,392,240		291·860
Pulse	..	..	..	1,956,900		12·320
Lemons and oranges	..	..	..	1,091,200		..
Coffee	..	..	..	587,180		4·76
Tea	..	..	..	11,440		..
Cocoa	..	..	..	20,460		..
Sugar	..	..	..	2,502,500		15·759

NOTE.—The share per head of population of the duty paid in 1896 was 1*l.* 13*s.* 4*d.* in the city (within the gates) and 6*s.* 10½*d.* in the open commune.

Slaughter-house.

The public slaughter-house is situated on the Mugnone, between Florence and Rifredi, about 3 miles from the centre of the town. It occupies a total area of 71,760 square yards. A fine building surmounted by a tower clock provides room for the offices, including a micro-bacterioscopic cabinet. An adjoining building affords accommodation for the various officials who live on the premises. Some wide and scrupulously well-kept alleys, bordered by trees and flowers, intersect the enclosure, giving the place the appearance of a pleasant garden. The slaughter-house is divided into 144 partitions (cells), in marble and cement, where each animal undergoes by the hand of a butcher the puncturing or division of the medulla oblongata in conjunction with Bruneau's mask. Sheep and swine are slaughtered separately. Horses are never slaughtered, not being used in Florence for food.

TABLE VIII.

	Number.		
	Gymnasiums.	Professors.	Students.
Gymnasium—			
Government institutes.	2	22	580
Ecclesiastical „ (seminaries)	1	5	94
Private „	9	55	308
Total	12	82	982
	Lyceums.		
Lyceum—			
Government institutes	2	14	243
Ecclesiastical „ (seminaries)	1	4	23
Private „	4	29	59
Total	7	47	325
	Schools.		
Secondary instruction (technical)—			
Technical schools, communal	4	43	666
„ „ private	7	50	218
Total	11	93	884
1 Government technical institute (higher than the preceding)	1	21	317
Boarding schools (“Convitti”), includ- ing those at Fiesole and Galluzzo—			
Male	..	..	958
Female	..	..	1,160

Technical,
commercial,
and
professional
girls' school.

The object of this school is to educate girls as commercial clerks, accountants, translators, &c., in a word to impart to them, besides the ordinary course, such complementary instruction as may enable them to attend to all professions requiring a moderate degree of culture. Very few schools of this sort exist in Italy. The present school was founded in 1879, and at present it consists of three classes in which the following education is imparted :

1st class.—Italian : so as to enable pupils to compose with facility and precision.

Arithmetic, as a preparation for book-keeping ; geography, French and English languages.

2nd class : commercial correspondence ; theoretical and practical book-keeping, commercial geography, French and English languages, political economy, civil and commercial law, &c.

3rd class : continuation of the study of the above subjects in conjunction with their practical application, especially with reference to trade and commerce.

The above 3rd class was added in 1881.

There is no limit of age, but an examination is prescribed for admission which for the 1st class should correspond to that for

obtaining an elementary certificate, and for the 2nd class to that required for admission to normal and secondary schools. The admission fee, originally very small, has gradually been raised to 1*l.* 10*s.*

In the year 1883 the new president, Commendatore Edward Philipson, an active supporter of anything advantageous to Florentine interests, gave a fresh impetus to the school by proposing, in the first instance, the formation of a numerous committee of lady patronesses chosen among the leading families of Florence, with the view that they should periodically visit the school, assist the lady-director in her office, be present at the examinations, and also look after the employment of the girls leaving the school with certificates.

In 1884 this institution was officially recognised by the Government as a girl's technical school, the programme being slightly modified in conformity with the Government regulations. Tuition in national and natural history, geometry and drawing was also added. In 1892 it was further supplemented by a section called "professional" formed through the kind offices of Princess Corsini, for the teaching of needlework, embroidery, dressmaking, ironing, mending, &c., which is attended by about 40 pupils.

The average number of girls attending the technical and commercial sections is about 100 per annum.

In the year 1896-97, the balance-sheet of the school shows a revenue of 470*l.*, and an expenditure of 505*l.* with a deficit of 35*l.*

Besides 21 universities, there are in Italy 13 superior institutes or smaller universities having special faculties; of these, Higher
education. three are situated in Florence and are: the institute of higher studies (*studi superiori e di perfezionamento*), the high school for girls (*regio magistero femminile*), and the school of social sciences and jurisprudence (*scuola di scienze sociali e giurisprudenza*).

The institute of higher studies comprises the following faculties:—

(a) Philosophy and literature (four years' course); (b) physical and natural sciences (four years' course); (c) medicine and surgery (six years' course); (d) chemistry and pharmacy (five years' course); (e) midwifery (two years' course).

It was founded in 1859; its present organisation dates from 1872 under an agreement (*convenzione*) between the Government, the province, and the commune of Florence, who contribute to its support. Its administration is entrusted to a board of directors consisting of six members, three of whom are appointed by the commune, two by the Government, and one by the province. Not being a body corporate this institute possesses no patrimony, and the buildings, collections, and equipment are State property. By Article 3 of the above-mentioned agreement, the annual allowance for the maintenance of the institute was fixed at 21,600*l.*, the State contributing 1,300*l.*, the remainder being paid one-third by

the province and two-thirds by the commune. In 1896 the total revenue, including minor allowances from Government, opere pie, three legacies, taxes and fees, proceeds from sale of publications, &c., amounted to 29,567*l.*, the expenditure to 28,692*l.*

Professors receive between 200*l.* and 320*l.* a year.

In the year 1894-95 it possessed 78 teachers and 540 students ; of the latter 287 belonged to the faculty of medicine. In the year 1896-97 the number of students was 594 (faculty of medicine 289 ; oriental languages 12). In 1897-'98 it was 623 (faculty of medicine 286 ; oriental languages 8). The staff of teachers of this distinguished institute enjoys the highest consideration in Italy as well as abroad. Amongst its distinguished members I may mention Senatore Pasquale Villari, an honorary lecturer of the University of Edinburgh, and a member of the principal Italian and foreign academies, who is the President of the Faculty of Philosophy and Philology, and a lecturer in modern history ; Commendatore Severini, Professor of Asiatic languages and a distinguished orientalist ; Commendatore Giglioli, a most remarkable zoologist, an honorary member of the Geographical Societies of Rome, London, and Berlin ; Professor Lustig, teacher of general and experimental pathology, the discoverer of the serum for curing the bubonic plague ; Senatore Mantegazza, and many other remarkable men. Annexed to the institute there is a national museum of anthropology and ethnology, an Indian and a psychological museum, a museum of ancient physical and astronomical instruments, a meteorological observatory, and many cabinets and laboratories, the latter being partly on the premises and partly annexed to the museum of natural history in the via Romana which also belongs to the institute. It is also furnished with an oriental printing office, under the superintendence of the President of the Faculty of Philosophy and Philology, possessing all the oriental type which belonged to the once-celebrated Medicean printing office, consisting of Arabic, Turkish, Persian, Syriac, and Armenian, to which other types of all sorts of Asiatic languages have been added.

Paulucci's
conchological
collection.

While speaking of this institute it may not be out of place to add that its collections of invertebrata at the Museum of Natural History mentioned above have lately been enriched by the donation of a most valuable conchological collection made by the Marchesa Paulucci née Panciaticchi Ximenes d'Aragona, a highly cultivated lady, who throughout her studious life has been greatly distinguished by her proficiency in that branch of science. This collection may be divided in three categories :—

1. *General Collection (exotic)*, represented by 50,000 specimens, including from 12,000 to 15,000 different species, well selected and perfect in freshness and form, among which are very numerous specimens from every sea and land, including those species most renowned for their rarity and beauty, as well as those given to her by other eminent collectors, and which bear her name.

2. *Collection of Shells from the Mediterranean*.—Very incomplete and only consisting of about 500 varieties, including, however,

numerous specimens of the most remarkable and rarest shells, amongst which is the "zoned mitre" in excellent condition of preservation.

3. *Collection of Italian Mollusca (land and river).*—This collection is unique of its kind, as besides being almost complete, at least as far as it has heretofore been possible to collect in Italian lands and rivers, it includes also all the different kinds discovered, described, and made known by the Marchesa Paulucci herself. So that anyone desirous of studying this rich fauna, must necessarily begin by examining the types of the Paulucci collection. The Italian species included therein may be calculated at between 2,000 and 2,500 represented by many thousand dozen specimens. It embraces also a minor collection of European Mollusca (land and river) which, thanks to her constant perseverance, the giver had succeeded in forming through her friendly relations with the principal Italian and foreign conchological collectors, and which was of great assistance to her for comparison in the classification and study of the Italian Mollusca.

The Marchesa Paulucci has also given to said museum her valuable and large conchological Library, which contains from the time of Linnaeus up to the present a complete collection of the most valuable works published in every part of the world on this very vast branch of human knowledge.

2. *Ladies' High School* (R. Magistero Femminile). Four years' course: 12 teachers; 125 students.

3. *School of Social Sciences and Jurisprudence*, intended to educate youth for a political career:—

15 teachers; 55 students.

The course of social sciences lasts three years; of jurisprudence, two years.

Royal Institute of Fine Arts (annexed to the Royal Academy of Fine Arts). Art education in drawing, painting, sculpture, and architecture is imparted in three courses:—

1. Preparatory (one year). ..

2. Regular (three years).

3. Special. (This course is divided in sections, one for each art, the duration being two years each, except architecture, which is four years).

The minimum age for admission is 12 years.

As a necessary complement of elementary tuition there is a free School of Drawing from the Nude with varied models according to character and age. Students of other Italian and foreign institutes desirous of attending that school are freely admitted on production of some introduction or certificate from their masters, or by undergoing an examination in order to prove that they are sufficiently advanced to profit thereby.

The number of pupils during the last three years was as follows:—

Regular Courses (compulsory) for obtaining diploma.

						Number of Pupils.
1895-96	..	..	..	..	..	135
1896-97	..	..	..	..	..	130
1897-98	..	..	..	..	..	121

Free School of Drawing from the Nude.

						Number of Pupils.
1895-96	..	..	..	..	..	148
1896-97	..	..	..	..	..	148
1897-98	..	..	..	..	..	151

Royal Institute of Music. Some municipal schools of music existed in Florence as early as 1811. After the cessation of the Napoleonic rule and the restoration of the Grand Duke of Tuscany (1815), these schools were claimed by the Government, and annexed to the Academy of Fine Arts. In 1860 they were finally converted into a single Government institute as it is at present formed on the system of all higher institutes under the Ministry of Public Instruction. It now consists of the following courses or schools :—

						Number of Courses.
(a) Preparatory	..	..	..	..	..	3
(b) Regular	..	..	..	..	..	13
(c) Supplementary	..	..	..	..	..	7
(d) Grammar school	..	..	..	..	..	1
Total	..	..	..	..	..	24

Among the 13 regular courses (b) cited above, five are devoted to the teaching of the various wind instruments, similar ones being grouped together in the same school.

The remaining eight courses which are the most important are the following :—

Number of Course.	Subject.	Number of Years' Course.	Age.	
			Minimum.	Maximum.
1	Musical composition ..	10	12	15
2	Organ	7	14	16
3	Singing	5	18	22
4	Piano	8	9	12
5	Violin and viola..	9	9	12
6	Violoncello	9	9	14
7	Bass	7	14	20
8	Harp	7	9	12

Tuition is imparted daily in singing, three times a week in the other schools. The duration of each lesson is three hours, and that given above for each course is for obtaining a high grade diploma.

The supplementary schools are :—

1. *Harmony, Counterpoint and Fugue* (compulsory for pupils of the organ school, optional for the others (duration six years)).

2. *Numbered basses (Accompaniment), Elementary Harmony, &c.* (four years).

3. *Supplementary School of Piano* (compulsory for pupils of counterpoint, organ, numbered basses, accompaniment and singing (duration two to three years)).

4. *Musical Aesthetics* (compulsory for pupils of the composition school).

5. *Scenic Art.*

6. *Grammar School* (compulsory for pupils unprovided with a certificate from a recognised elementary school).

Total number of teachers is 29, pupils about 200.

Weekly experiments are made collectively among the pupils of each school, as well as among the various schools including a quartet and a full orchestra.

The final examinations for diplomas are of two grades: normal and high. Students who successfully pass the first receive a corresponding diploma, and by the second a higher degree diploma, the latter bearing the signature of the Ministry of Public Instruction.

Students not belonging to the Institute are allowed to compete in the examinations of both grades.

It is, perhaps, worth while mentioning that Papini, a violinist very well known in London, was a pupil of this Institute, and was the first student inscribed in the violin school when it was formed in 1860, his matricular number in the school register being one. Many other distinguished artists have made their studies in this Institute, which occupies a considerable rank amongst the best musical academies of Europe, many foreigners, including several British subjects, having studied there.

The Library of Music was formed in 1862 with the collections belonging to the Archives of Music of the Grand Duke of Tuscany

Library of Music
annexed to

the Royal
Institute of
Music.

and the Academy of Fine Arts. It was afterwards increased by purchases and valuable donations from the Corsinis, Martellinis, Manettis, Casamoratas, Fumiés, Fransonis; the most important bequest is due to Professor Abramo Basevi, which includes a large collection of bibliographical rarities and other interesting works connected with every branch of art. The whole collection consists of 9,967 volumes, 3,788 portfolios, 5,307 pamphlets, and books of theatrical plays, also 12 portraits of donors and many valuable autographs. It occupies five rooms in the building of the Institute of Music and is furnished with special catalogues and a complete inventory. Amongst the manuscripts may be mentioned two parchment codices (Ockeghem's) of songs of the 15th century, one of which belongs to the best period of the Flemish School. The collection of Madrigals of the latter half of the 16th century is likewise important for the excellence of the authors and the rarity of the editions.

This library, although principally designed for the use of the Institute of Music, is open to the public three times a week between 11 a.m. and 3 p.m.

The National
Central
Library of
Florence.

The National Central Library of Florence which on account of the richness of its collection is said to hold the first place among libraries in Italy and the seventh among the libraries of the world is provided with two large reading-rooms, books being kept in 80 rooms of three different buildings in nine distinct flats. The present accommodation is absolutely insufficient on account of the constant increase in the number of books. The municipality has offered the Government, gratuitously, a wide and well adapted site in the centre of the town (piazza Vittorio Emanuele, side of Porta Rossa) for erecting a new building, but the latter do not appear to see their way to grant the funds for its construction, although the necessity for the same becomes more evident every day.

On December 31, 1897, the library possessed:—

	Number.
Manuscripts	18,298
„ Oriental, especially Sanscrit	700
Letters and autographs	275,203
Parchments (pergamene)	957
Books and pamphlets	984,008
Music, printed	22,747
Prints and drawings	7,785
Portraits (engraved)	20,080
Maps	1,627

also a large quantity of leaflets and pamphlets, which are now being put in order.

Many codices are splendidly painted in miniature, and among the books there are to be found very rare volumes, many incunabula and a fine collection of old music.

Among the most important special collections, I may mention

the manuscripts of Galileo and his school (300 volumes), the collection of all the works of Fra Girolamo Savonarola and the very rich collection of books of Count Guicciardini on the Religious Reform of Italy by the latter, a gift to the library.

From 1870 the library has been entitled by law to a copy of all books, pamphlets, &c., published in Italy. The allowance therefore received from the Government for the purchase of new books is almost totally devoted to the acquisition of the most important works published abroad.

Since 1886 the library publishes twice a month a bulletin of all the Italian publications received under the above mentioned rights, and distributes 330 copies of the same to the principal scientific and literary institutions of the World, 30 copies being sent to Great Britain.

The library receives many gifts from abroad (in 1896 these gifts, volumes and pamphlets amounted to 5,732) which is principally owing to the fact that the National Central Library of Florence, as a central dépôt, is bound to lend to all other Italian libraries, Government academies, and other scientific and literary bodies, and to many communal libraries, all the books that it may possess, so that a gift made to the Central Library of Florence will prove useful to the general studying public throughout Italy. This important circumstance ought to be borne in mind by those British institutions which are likely to send gifts of books to Italy.

During 1897, the Central Library lent out 8,833 books and 54 manuscripts, five of which were out of the kingdom.

During the same year the increase of the stock of books was : 30,699 volumes and pamphlets, 2,302 pieces of music, 85 manuscripts, 8,012 letters and autographs, and 1,177 prints and drawings. The library was attended during the year by 63,545 persons.

Of late years important improvements have been carried out in the Florence Galleries and Museums. At the "Uffizi" the decoration of the Niobe room was restored, and the paintings substituted by old tapestry. The jewellery room was entirely re-arranged. Two new rooms were opened for sketches, pastels, and miniatures; but the most important improvement was the new arrangement given this year, in four new rooms, to the collection of portraits of painters, which were disposed chronologically, and at the same time according to nationality. In consequence of the opening of these rooms, a double staircase leading from the first to the upper floor was added with a view to rendering more imposing the access to the vestibule. The bas-reliefs of the Rapace Salustre kept therein were removed and replaced by four tapestry hangings, the former being placed together with the collection of busts of the princes who have encouraged the gallery, in the room of the Hermaphrodite, substantially improving the arrangement of the latter and of the adjoining room containing inscriptions, statues, and busts.

In the Ancient and Modern Gallery (via delle Belle Arti), three rooms were added one called the "Perugino" after a large

Royal
galleries and
museums.

picture of that master (the Assumption), and the other two rooms taking their name from "Botticelli" because they contain several pictures of that painter. The large room (Salone) was divided into three rooms called "of the Tuscan masters," where the works of the chief Tuscan painters from the 13th to the 18th centuries were arranged and classified.

A new staircase leading to the Palatina Gallery was built in the Palazzo Pitti after the design of the late Professor del Moro, the architect, who superintended the building of the façade of the Cathedral, unveiled in 1887.

A precious addition was lately made to the many art treasures preserved in Florence, by this year's discovery in the Ognissanti Church of a fresco representing a crucifixion (deposizione) below and virgin above stretching her hand over some figures who are said to represent Amerigo Vespucci and his family.

Charitable
institutions.

Although Florence is among the cities which are most largely provided with charitable institutions for the relief of almost every sort of distress from the beginning to the end of the life of the needy, there are, however, not a few disproportions and inadequacies in the distribution of relief. I may mention, for instance, the large numerical proportion of the asylums for girls in comparison with those for males, the want of a home for convalescents, the insufficiency of assistance to the sick at their houses and, in some cases, a lack of harmony in the mutual relations among the various institutions.

The charitable societies of Florence may be divided as follows:—

						Number.
Hospitals, homes, and orphanages	..	..	..	..	..	15
Colleges, schools, and other educational establishments	..	..	..	..	..	29
Relief societies	..	..	..	..	..	158
Total	..	..	..	..	..	202

Central
Hospital

1. *Central Hospital* (Arcispedale di S. M. Nuova), including the hospitals of Orbatello, Maternity, Mayer's Hospital, and Bonifazio. It is amongst the oldest charitable institutions, having been founded in 1235, by Folco Portinari, the father of Dante's Beatrix. Its patrimony was gradually increased by the addition, at various times, of assets of other hospitals which were suppressed by government subsidies, and important bequests from benefactors. At the end of 1896 it amounted to 523,489*l.* showing a considerable increase on the year 1880, when it was only 456,919*l.* Considering, as we shall see further on, that at the end of every year the balance in hand is distributed among some communes, this increase can only be due to improvements made to the estate, to new bequests, &c. The total income for 1896 was 66,507*l.*, the expenditure 61,589*l.*, the balance paid to the communes 4,918*l.*

This hospital possessed also an important gallery of paintings of old masters, which was lately sold to the Italian Government for 168,000*l.*, on condition that the pictures were not taken out of the city, and a proper place, I am informed, has already been assigned to them at the Uffizi.

The hospital is administratively independent, the director commissary being, however, appointed by the provincial council. The latter is assisted by a board of administrators composed of seven members, four appointed by the Province, and three by the Commune.

The principal object of this institution is to receive the sick poor, affected with curable diseases of all sorts, lunacy excepted, those suffering from chronic diseases which became incurable in the hospital, and to provide public medical consultations. In 1878, a maternity hospital, and a school of midwifery was added. Mayer's Hospital was annexed in 1887.

The hospital confers, annually, 145 marriage portions and subsidies according to 52 trusts left by benefactors at various times. The portions are generally of 2*l.* or 3*l.* each, and in a few cases they exceed 4*l.*

The assistance of this hospital is not confined to the inhabitants of the Commune, but is extended to those of the whole province, and its doors are always open to everyone urgently requiring medical assistance.

Destitute foreigners are likewise received and attended to, payment being claimed diplomatically from each Government in those cases when reciprocity of free treatment does not exist.

The admission of destitute persons must be applied for in every instance by the Commune to which the patient belongs, and is regulated by instructions issued in 1818 and by a Grand Ducal Decree of 1833 still in force in Tuscany, the expenses being charged to said Communes.

The net total income of the hospital is constituted:—

(a.) By the annual income of the estate.

(b.) By the reimbursements of the expenses for attendances either from the Communes, if the patient was destitute, or by the patient himself if otherwise.

(c.) By gifts and bequests from private people and other assets as may be from time to time directed by law. The said total income is entirely devoted on behalf of the sick, the balance being distributed at the end of the year among the Communes to which the patients who had been at the hospital belonged in proportion to the number of days passed in the hospital.

The ordinary charge for patients in the wards is 1*s.* 6*d.* per diem and 3*s.* 2*d.* for separate rooms.

The total number of beds is 1,200. The average annual number of patients is about 10,000; permanent number, on an average, 1,069. On January, 1884, they amounted to 1,042. On January 1, 1898, 1,221, distributed as follows:—

	Number.		
	Male.	Female.	Total.
S. M. Nuova—			
Ordinary diseases	239	202	441
Venereal	8	15	23
Orbatello—			
Cutaneous	27	45	72
Maternity, Hospital of—			
Obstetrical section	..	50	50
Gynæcological	..	35	35
Maternity, Hospital of, and Mayer's Hos- pital for Infants—			
Infants' diseases	64	42	106
Bonifazio—			
Chronic diseases	136	301	437
Eye diseases	24	33	57
Total	498	723	1,221

Spedale di
San Giovanni
di Dio.

The Spedale di San Giovanni di Dio Hospital had its origin in the last will of Simone Vespucci, dated July 12, 1400. After the latter half of the sixteenth century it was entrusted by Ferdinand of Medici (I) to the Convent of Fate-Bene-Fratelli, under whose management it remained until 1862 when the administration passed into the hands of a committee appointed by the Commune. This hospital receives under gratuitous treatment destitute males only, who must be Florentines and not affected with incurable or infectious diseases. Three classes of paying patients also exist at 4s. 9d., 2s. 4½d., and 1s. 7d. per diem, very good treatment being given.

Lunatic
Asylum of
S. Salvi.

The Lunatic Asylum of S. Salvi is a new, spacious, and most up-to-date establishment in substitution of Bonifazio.

Number of lunatics under treat- ment—	On January 1, 1896.	On March 2, 1898.
Males	658	718
Females	551	602
Total	1,209	1,320

Patients are divided into three classes, charges being 2s. 9½d., 2s., and 1s. 6d. according to treatment. In case of destitute persons expenses are paid by the Province.

There is also a Military, an Israelitish, and an Evangelical Hospital.

Pia Casa di Lavoro is a home for the disabled and a workhouse for boys and girls. They must belong to the Commune of Florence, prove to have been unable to obtain admittance elsewhere, be

Pia Casa
di Lavoro.

entirely destitute and without relatives in a position to provide for their support. If of age they must be incapable of lucrative work. Young people are kept until 16 or 18 years of age, being instructed in some handicraft in the works annexed to the establishment. However useful that Foundation may be it is undoubtedly inadequate to avert the social plague of begging so much lamented of late in this city. On that important subject, Cav. Ceroni, the present director of the home, in his last report justly observed that "We are continually spectators of the following curious fact: the police arrest beggars and bring them to our home without ordering their confinement. Our home reports the case to the municipality who, when a beggar cannot prove to have been domiciled in the Commune for at least five years, or is not entirely disabled for work or for some other minor reason, orders his immediate release and the man resumes begging until he is arrested again. Neither the municipality nor the home can keep a person against his will without a special order from the police. Let this order be given as formerly," Mr. Ceroni says, "according to the law of June 30, 1889, and Royal Decree of November 10 of same year, and this home will be once more able to receive beggars even against their will. If this course is not adopted we shall continue to see the police arrest beggars and the municipality order their release and thus restore them to the streets."

This course, as recommended by the director of the *Pia Casa di Lavoro*, which had in fact been in force for some time previous to 1893, under the above-mentioned law, was, I am informed, abandoned a few years ago by ministerial instructions on account of the expenses to which the Government made itself liable for the maintenance of beggars sent to the home.

"On the other hand were that course to be permanently resumed," the director continues, "the admission of vicious beggars in this home might cause the most serious inconveniences to the institution. Is it in fact moral or charitable to mix forced inmates of a doubtful character with those who have a right to public charity?"

The director gives no answers, but this and other remarks which I have omitted for brevity appear to lead to the conclusion that the *Pia Casa di Lavoro* as it is, is not intended for beggars and vagabonds and that a refuge or workhouse for that purpose would be very useful in Florence.

In the *Pia Casa di Lavoro* study and work is compulsory for youth, males being placed in some school until of an age to work. They are then placed as apprentices in the mechanical and other workshops on the premises according to their aptitude or to the wishes of their families. On their reaching at the latest their nineteenth year of age they must leave the Home, and generally they do so, fully instructed in some art or handicraft.

The following works and mechanical workshops are annexed to the Home:—(1) Artimini's mechanical works for the construction of iron bedsteads, furniture, &c. (2) Palli's factory of artistic furniture. (3) Canovai's works (carriages). (4) Pacetti's boot.

factory. (5) Frosini's pasteboard box manufactory. (6) Boyer's type foundry. (7) Martinetti's mechanical workshops. (8) Cavino's brass foundry.

On December 31, 1895, the total number of inmates and of relieved boarding outside (including Orphanage of S. Filippo Neri and the Poirot's legacy) were as follows:—

						Number.
Males	..	..	..	..	..	990
Females	..	..	..	..	..	743
Total	..	..	..	..	..	1,738

On the premises—

						Number.
Blind or almost blind	..	..	..	..	..	61
Epileptical	..	..	..	..	..	12
Idiots	..	..	..	..	..	88
Chronics	..	..	..	..	..	508
Boys and girls	..	..	..	..	..	108
Total number of inmates	..	..	..	..	..	777

As shown by the above statements, not even a half of the relieved are housed and fed on the premises, the most part, among whom some orphans belonging to the foundation of S. Filippo Neri, being given out to board with private families having no children of their own, or employed on farms, &c.

The balance sheet of the Pia Casa di Lavoro for 1895 shows a revenue of 12,769*l.*, and an expenditure of 11,179*l.*, with an active balance of 1,590*l.* Its total patrimony amounts to 66,768*l.*

Orphanage of
San Filippo
Neri.

The orphanage of San Filippo Neri, annexed to the Pia Casa di Lavoro since 1871, is for orphans born in Florence in destitute condition, aged from between 10 and 14 until 18. Children who are not orphans are likewise received on payment. The orphanage gives each boy in charge to some respectable family willing to look after and instruct him in some art or handicraft on moderate terms. If any boy is endowed with remarkable intelligence and aptitude for some particular science or fine art, funds are supplied by the orphanage until his studies are complete. In 1895 the balance sheet of the orphanage showed a revenue of 1,146*l.*, and an expenditure of 862*l.*, with an active balance of 284*l.*, its total patrimony being 21,329*l.* The number of orphans relieved in that year was 127.

Poirot's
legacy.

Poirot's legacy is another orphanage annexed to the Pia Casa di Lavoro. The boys of the parishes of San Felice, in Piazza, and Or San Michele have a preference in virtue of the testamentary dispositions of the founders.

For the year 1895 the balance shows a revenue of 520*l.*, and an expenditure of 654*l.*, with a deficit of 134*l.*

The number of orphans relieved was 67.

It would go beyond the scope of this report to give full particulars of all the other numerous and important charitable foundations existing in Florence. Brief mention may, however, be made of the Pawn Office called "Azienda dei Presti ed Arruoto" Pawn office. or else "Monte di Pietà." The object of this foundation, dating from 1495, is to prevent people in want of money from falling into the hands of usurers, by giving loans on pledge under reliable guarantee. Almost every sort of article, including old linen and clothes, is received in pledge. After the expiration of one year if the loan is not redeemed or else renewed for another year, the pledge is sold by public auction. The renewal consists in the payment of interest and of a commission amounting in all to about 10 per cent. per annum. A similar institution has never existed in England, but was of late a subject of special study.

The Congregazione di Carità, including 25 charitable foundations for granting subsidies, portions, distributing food, providing beds, clothing, dispensing medicines, &c. The Congregazione di Carità. On December 31, 1896, its total capital (movable and immovable) amounted to 60,917*l.*, the amount spent in charity from January 1 to December 31, 1897, to 4,848*l.*, exclusive of a certain number of dowries for which no particulars can be obtained. The Congregazione dei Buonomini di S. Martino e di S. Giovanni Battista for granting general relief, the first with a capital of 3,724*l.*, and the second of 32,000*l.*

The Orphanage of the Bigallo, founded by Cosimo I. in 1541, The orphanage of the Bigallo. having the care of between 800 and 900 orphans. Its total capital amounts to 111,782*l.*; annual expenditure, about 2,300*l.*

The Società di prevenzione dell' Accut-tonaggio (for preventing mendicity), a modern society founded by subscriptions for procuring work for beggars, employing them in workshops belonging to the society, or by placing them elsewhere. The Società di prevenzione dell' Accut-tonaggio.

This society instituted the Cucine Popolari, or People's Kitchens, a foundation which, owing to its great usefulness, excellent management, and especially to the large support of distinguished patronesses, has been most successful, and is now being made an independent society. The people's kitchen in the Borgo S. Apostoli was established somewhat on the lines of those of Vienna, and has in this year of exceptional distress been more flourishing than ever. At marble-topped tables families eat together; they pay their pence at the door and receive a brass ticket with which they pay the attendants for value received in the shape of food. Persons who come with printed tickets instead of money receive the same brass ticket, and at the table neither attendant nor neighbour can know who has paid for his dinner or who has received it in charity. These printed vouchers, from $\frac{1}{2}$ *d.* to 3*d.*, are sold by the kitchen through the agency of many of the shops, and all who desire to help the poor will give such tickets away to beggars in the streets. Anyone wishing can carry food away in any reasonable quantity. Soup is sold at $\frac{1}{2}$ *d.* a plate; 4*½* ounces of

good bread may be obtained at the same price; meat and vegetables cost $1\frac{1}{2}d.$; macaroni with cheese or beans, $1d.$; red wine, $1d.$ a quintino.

The Società
di Patrocinio
dei Liberati
dal Carcere.

The Società di Patrocinio dei Liberati dal Carcere, a society for the assistance of persons released from prison or hard labour, intended to preserve them from the danger of a relapse into crime, and to bring them back to an honest and laborious life. The society was formed in 1844 by Senatore Fenzi, Comre. Peruzzi, when Syndic of Florence, being its first secretary. The society provides situations for those released from prison, assists them morally and financially, becomes a guarantee for its protégés towards the authorities, obtains for them exemption from surveillance, &c.

The Ospizi
Marini.

The Ospizi Marini, a modern foundation by which scrofulous children are taken to the seaside for the benefit of their health. It possesses a capital of 11,181*l.*, and spends annually about 1,800*l.* In 1896 the number of children relieved was 748.

The Asili
Infantili di
Carità.

The Asili Infantili di Carità, for the primary education and relief of children of the poor. Capital, 15,727*l.* Expenditure on charity during 1896, 1,251*l.* The Leopoldine, the Popular, and the Demidoff's Schools, for elementary instruction; the Istituto Vittorio Emanuele, for the instruction of the blind (capital, 19,916*l.*, annual expenditure, 1,016*l.*); an Institute for the Deaf and Dumb (capital, 3,284*l.*, annual expenditure, 510*l.*); the Pio Istituto dei Bardi, for the teaching of arts and sciences applied to trade and industry; the Educatorio di Fuligno, for the general education of poor girls (annual expenditure, 1,971*l.*). The Refugees of S. Ambrogio, S. Silvestro, Pio Ritiro Capponi, and Istituto della Crocifissione, four reformatories for young women, their capitals and expenditures being respectively: 16,344*l.*, 597*l.*; 7,831*l.*, 2,960*l.*; 6,069*l.*, 327*l.*; 1,418*l.*, 734*l.* The Istituto dei Minorenni Corrigendi, an institute of education for disorderly youths; the Conservatorio di S. Pietro Martire, a refuge for married women who owing to disagreement with their husbands have left the marital threshold; the "Misericordia," for transporting the sick to hospitals, several Israelitic foundations, consisting of a hospital, some schools, and several relief funds for assisting the needy of that faith, which are all in connection with the Università Israelitica, a sort of body corporate (Ente morale) in direct communication with the prefecture, having the management of all social funds and the superintendence of the institutions above referred to, with a total capital of 27,792*l.*, and an annual expenditure of 1,656*l.*

Rebuilding of
the centre.

The rebuilding of the centre of Florence was first begun in 1888, and will be finished in 1899. The final project was drawn up by a commission appointed for that purpose by the municipality, who in their work followed the lines of a previous scheme approved by Royal Decree of April 2, 1885.

It consists approximately of a square surface blunt at its north-eastern angle, the right side being that tract of the via Cerretani, lying between Piazza del Duomo and via Rondinelli,

the upper side consisting of that branch of the *via Tornabuoni*, situated between *via Rondinelli* and *piazza Santa Trinita*, the left side being constituted by the *via Porta Rossa*, and the lower side by the *via Calzaioli*. On the left the modifications extend somewhat beyond the given limit as far as the *via Vacchereccia*. At about 54 yards from the *via Calzaioli* lies a regular square (*piazza Vittorio Emanuele*), and parallel streets intersect the area in a southward and eastward direction, the main streets being southward *via degli Strozzi*, prolonged by *via degli Speziali* and eastward *via Pellicceria*, both of which cross in the centre at right angles by the upper side of the square.

The project, although intended to clear out the more central quarter of the town from heaps of old houses and trace larger and regular streets, had at the same time in view the arrangement and good environment of some important monuments like the Church of Or San Michele, the Palazzo Strozzi, the Church of S. Gaetano, as well as the many old interesting palaces spread thereon, as that quarter of the town being the oldest and more central was once inhabited by the wealthiest and most powerful families of the Florentine Republic.

The area expropriated for the rebuilding of the centre is 51,428 square yards, besides the existing streets; the number of expropriated buildings is 356, with a total expense for the commune of 320,000*l.*; the number of streets is 16, their total length about 2,516 yards, and their average breadth 46 feet.

The Palazzo Strozzi, so remarkable for its grandeur as well as for the exquisiteness of its cornice constructed by Simone del Pollajolo, has greatly benefited by the change owing to the widening of the square at the back of it. The most interesting Palace of Palla Strozzi in front of the above, by some attributed to Brunellesco, by others to Michelozzi, the architect of Palazzo Riccardi, though not yet finished, has likewise much benefited by this square, and will soon be repaired and completed. The large Archiepiscopal Palace, which was entirely hidden among heaps of miserable houses within the old fruit market, has been entirely freed, repaired, and to some extent rebuilt. The Baptistry opposite to the above palace was likewise greatly benefited by the considerable widening of the square round the church; the Palazzo Vecchietti (*La Carolaia*), the Casa dei Sassetti, and the Casa Lambertini were also thoroughly repaired and restored to their original state by order of the municipality, who, in selling the expropriated properties, obliged the buyers to rebuild any historical building that might be included in the lot. The Palazzi Medici-Tornaquinci, Orlandini del Beccuto, and others were repaired by the proprietors of their own accord, whilst the Palagio dell' Arte e della Lana and the Torre dei Foresi are not yet, but will soon be thoroughly restored to their former condition.

The extension of the city towards the east, considered the most pleasant and healthy part, has been heretofore delayed by the Florence-Rome Railway. The necessity of displacing this line had been fully anticipated and provided for 32 years ago

New station
of the Campo
di Marte.

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in a general plan for enlarging the city, approved by Royal Decree, dated September 19, 1866. The removal of the capital to Rome had, however, caused the question to be postponed, and it was only in 1889 that a new project was brought forward, and this was followed by the construction of a new traffic station near the Campo di Marte in substitution of the "Croce" station, and the displacement of the line itself between the Affrico and Mugnone which was completed in 1896. Before opening it to traffic the commune made a convention with the Government to concentrate in the new station all the goods traffic previously discharged at the central station (Porta a Prato). The total estimate for the entire execution of the works was fixed by the High Council of Public Works at 270,927*l.*, the Ministry of War contributing 10,000*l.*, and the commune 56,000*l.*, including the value of the ground given up to the Government. The latter, on the other hand, gave up to the commune the area occupied by the old branch of the line so displaced amounting to 102,856 square yards.

In order to facilitate the building of the new station the commune took upon itself to proceed to the expropriations of further ground required for the same with the payment by the Government of a lump sum of 10,000*l.*

The amount expended, up to the present, amounts approximately to 88,000*l.*

According to the above-mentioned convention, the Government is bound to carry out all further necessary works before the year 1900, when there will remain 5,200*l.* to be expended in order to complete the project of 1889.

In connection with the displacement of the Roman Railway and the consequent construction of the Piazzola bridge in substitution of the level crossing of the Querce, the commune has incurred an expenditure of 20,000*l.*, viz., 7,200*l.* for the displacement of the octroi boundary (cinta) and gate (barriera), and the remainder for expropriations. The above bridge has reduced to two only, the five level crossings that were on the line between the Affrico and Mugnone, to the great advantage of railway shunting and inter-communal transit. The wooden structure temporarily made for passenger traffic at the Campo di Marte station will be replaced by a proper stone building.

A scheme is now on foot with a view to improving the central station, for which the Government assigned a sum of 12,000*l.* and the commune 2,400*l.* It is, however, anticipated that these amounts will prove entirely inadequate for the purpose. Owing to its situation in the centre of the city this old station is specially adapted for passenger traffic, which explains the interest now being taken in Florence as to the best means of enlarging it and rendering it more suitable to its purpose.

Quartiere di San Frediano. At the same time that the works in the centre of the city were being carried out, attention was devoted to the improvement of the buildings and streets of the Quartiere di San Frediano, the poorest in Florence, and the actual refuge of that part of the

population driven out from the Ghetto and the old market. These works will not be completed for some time. However, part of the old city walls on that side have already been pulled down to put the quarter in more immediate contact with the town, a new gate called "Barriera di Bellosguardo" opened, a large square formed, and many houses expropriated for future changes. These preliminary works are intended to be followed by more substantial improvements of the houses and streets of this populous quarter.

The sewerage inside the town consists of a net of sewers of an ovoidal section allowing circulation, converging into two mains leading into the Arno. Sewerage.

The following table shows the length and cost of the whole system:—

	Length in Yards.	Cost.	Total
		£	£
To March, 1883—			
Mains	11,483	190,400	
Secondary mains	81,595	447,666	
Sub-mains	26,221	47,954	
„ smaller	39,554	43,403	
			720,423
From March, 1883, to January, 1887—			
Sewers of a reduced, but allowing personal circulation, inside the city walls	3,350	11,904	
Ditto outside the city walls	3,495	6,310	
			18,214
From 1887 to 1891 (June)—			
Sewers, as above, inside the walls..	3,162	..	25,756
Ditto outside the walls ..	4,890		
From June, 1891 to 1892—			
Sewers allowing personal circulation	678	3,224	
Smaller	1,324	2,904	
			6,128
From 1892 to 1897—			
Sewers allowing personal circulation	2,735	13,000	
Smaller	875	1,920	
			14,920
Total	..	..	794,441

The water supply is obtained from the Arno, being filtered through a tunnel called "Galleria dell' Anconella," extending in an east-ward direction 20 feet below the bed of the river from the works at San Niccolo up to the Anconella for a length of 1,640 yards and then raised by pumps into two large reservoirs, one to the north (Pellegrino) and the other to the south (Carraia), whence it is distributed into the town. Water supply.

The maximum temperature of the water at its source is 73° 4' Fahr.

Another supply is obtained from several springs in the valley of the Mugnone and neighbourhood 4 miles from the town, in substitution of the old Montereggi aqueduct which once conveyed

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water direct from some springs which were declared to be liable to infection and consequently suppressed in 1891. This spring water rises by natural pressure through the main up to the distributing reservoir at 43½ yards above the level of the threshold of the principal entrance of the Communal Offices, and then from the reservoir it flows, through pipes, into the town.

An additional supply is obtained from a large well in the middle of the Champ de Mars (Campo di Marte) brought up to a third reservoir (Querce) by a 40 horse-power steam engine, pumping 11 gallons per second. This engine was manufactured by Messrs. Tosi of Legnano (province of Milan).

The capacity of the reservoirs is as follows:—

				Cubic Yards.	Gallons.
Pellegrino	..	..	..	24,329	4,092,000
Carraia	..	..	..	16,742	2,816,000
Querce	..	..	..	5,232	880,000

The machinery at the S. Niccolo works for forcing up the water into the reservoirs consist of three pairs of pumping engines rising 66,000 gallons of water per hour, moved by two turbines of the force of 170 horse-power each. The works are also fitted with steam engines for use when the river fails to supply the required hydraulic power which generally occurs only during 30 or 40 days in the year.

Pipes made of pig-iron were manufactured in Italy.

Consumption of water. In the year 1896 the total consumption of water amounted to 874,748,380 gallons. Up to the end of said year the total number of concessions granted for domestic use was 4,834.

Wells. Nearly every house is provided with a well of which about 13,000 exist in the town. Well-water generally rises from a depth of 29½ to 36 feet from the surface of the soil, its temperature being from 57° 2' to 60° 8' Fahr. Of late years a few of these, being reputed unwholesome, were closed by the municipality.

Quality of water. The quality of the public water is satisfactory under ordinary circumstances, but is said by hygienists to be liable to become contaminated and consequently a source of public infection. It is also held to be decidedly scarce in quantity chiefly to the detriment of the public services, especially watering of the streets, boulevards, &c., this scarcity being also an obstacle to the general suppression of private wells which might eventually become a cause of infection.

New aqueduct. The question of the water supply has been a matter of discussion in Florence since 1811.

A scheme to provide water from the Sieve was sanctioned by the Grand Ducal Government as early as 1857, but the commune was obliged to give it up on account of the great cost of the enterprise.

In 1867 the municipality bought some springs at Rignalla with

a view to bringing their water into the town, but even in this instance the project was abandoned on account of the scarcity of water available therefrom.

Two years later a municipal commission appointed for the purpose fully reported on the matter, but nothing was done until 1870, when the Monterecci aqueduct was transferred to the commune and improved.

In 1872 the scheme for the present system (Anconella tunnel) was brought forward and met with the approval of the commune; the present works were speedily commenced and completed in 1877, their rapid completion being due, as in the case of other great public works, to the energy and good offices of Commendatore Ubaldino Peruzzi, at that time Syndic of Florence.

The supply so obtained was, however, not found in course of time very satisfactory either as to quality or quantity, for the reasons I have already stated in a previous part of this report, and a competent commission appointed in 1886, after careful chemical and bacteriological analysis, reported it to be "fairly good but liable to contamination." The matter was therefore brought again into discussion and a new commission appointed. The latter presented in 1893 an elaborated scheme for bringing the water from the "Garfagnana" by an aqueduct 64 miles in length at an expense of about 800,000*l*. The project was, however, objected to and abandoned.

The commune decided, therefore, to entrust the study of the question and of further schemes to the permanent municipal commission of works, who having examined eight new projects, reported upon them on May 14, 1895. Of these, three only were found worthy of serious consideration.

1. Messrs. Luciani Brothers' project to obtain the water from the Monte Amiata by an aqueduct 72½ miles in length at an expense of 640,000*l*., giving 5,280,000 gallons per diem (24 hours).

The board rejected it on the ground that there was no guarantee that the water was good, and that the estimated cost was too much under the mark, calculating that it might exceed 920,000*l*.

2. Project of Engineer V. Bibolini—Source, Pistoja Apennines; output, 6,600,000 gallons per diem (24 hours); cost, 320,000*l*.

Objected to for technical reasons.

3. Messrs. Vestrini and Bibolini's project for an aqueduct to bring the water from the Gangheri and Chiesaccia (Garfagnana); length, 62 miles; output, 6,600,000 gallons; to be constructed at their risk for 440,000*l*.

This was preferred to the others, by the board, with some modifications. The board, however, advised the Giunta to have tenders for the grant of the concession on the main lines of the above project, but under conditions fixed by the commune and suggested by said board.

This project was analogous as far as the source of supply is concerned to that proposed by the commission of 1893 and rejected by the commune.

A new proposal, which was said to be very advantageous for

the commune, was at this time submitted by another company (Del Poggetto's project) on the lines of that suggested by Engineer V. Bibolini, for obtaining the water from the Pistoja Apennines. Obstacles, however, arose on account of the important mills existing in that district, especially at San Marcello, where hydraulic power is used up to 300 horse-power and which would have been deprived of the same, and above all on account of the practical difficulties to collect together the water of the numerous small springs in that district.

For this and other reasons this project failed and gave way to that of Messrs. Boggio and De Niccolò, by whom at last a preliminary agreement was prepared and sanctioned both by the commune and prefecture on July 9, 1897.

**Plans
approved of.**

The detailed technical project has not as yet been published nor the contract signed. It is, however, held in official quarters that the company, a solid and reliable one, will be but too ready to undertake the enterprise about which they have already incurred some expenses for preliminary studies, &c.

The company will bind themselves to bring into Florence every 24 hours 6,600,000 gallons of drinking water of excellent quality, to be derived either from the springs of the Pistoja Apennines or from the Turrita di Galliano (from the spring called "dei Gangheri") in the "Garfagnana," will provide the springs (except that of the Gangheri which already belongs to the commune), will make the necessary expropriations to construct the aqueduct and reservoirs, lay the mains, pipes, services, &c., all on account of the commune, which will immediately become proprietor of the plant.

The company will have the right to exploit the aqueduct on their own account for *fifty years*.

The commune guarantees the sale of 1,100,000 gallons of water per diem after three years of exploitation and 1,320,000 gallons after five years. This guarantee will not be binding in case of wars fought in Italy, epidemics or other public calamities. It will completely cease when the sale of water for domestic use shall have reached 1,320,000 gallons per diem.

The company will have to submit to the commune within a year from the date of the notification of the provisional concession from the superior authorities a complete plan of the plant. On receiving said concession, they will have to pay to the commune as a security 150% of 5 per cent. Italian rente.

Before the definitive project is approved, the water to be brought into the aqueduct will have to be carefully analysed by a special commission appointed by the commune in order to ascertain that the same is of the best quality and from natural springs.

The supply may be effected in two distinct periods. In the first not less than 4,400,000 gallons per 24 hours will have to be provided within 30 months after the date of the definitive contract; in the subsequent period the supply will have to reach 6,600,000 gallons per 24 hours, as soon as the total con-

sumption will be of 4,180,000 gallons per diem. In this case the works will have to be completed in 18 months. Under any circumstances the same will have to be completed within 30 years from the date of the contract.

As an indemnity for all expenses incurred by the commune from January 1, 1897, up to the date of the execution of said contract, for laying new pipes and other unavoidable works to the mains, the company will have to pay a sum not exceeding 6,000*l*.

The commune will grant the company during the concession the free use of the water of the spring of the Gangheri, that of the reservoirs of the Carraia, Pellegrino and Querce, and the whole plant underground. The company, with the consent of the commune will, if necessary, modify this plant at their own expense.

Whenever required, at the request of the commune, the company will construct at their own expense a reservoir of the minimum capacity of 880,000 gallons, near the one existing at the Querce, according to the exact plan approved by the commune. The commune will have the right of free use for all municipal requirements of 2,200,000 gallons of water per 24 hours. When the quantity of water sold for private use shall have reached 1,320,000 gallons per diem, the Company will have a right to use within the communal territory but outside the gates, and exclusively for the watering of the streets, squares, and other public purposes, the water of the well of the Campo di Marte, which will be placed at the disposal of the company just as it is, together with the accessory buildings and machinery. In this case the company will construct at their expense the necessary conduits, reservoirs, &c., in such a way, however, as to be entirely separate and independent from the other system, and always subject to the approval of the communal council, and under the strict surveillance of the same.

The company will be exempt from all direct communal taxes for the construction as well as for the exploitation of the aqueduct, and from octroi duty on the pipes, &c., but not from any other tax.

The commune will be entitled to use the water obtained through special pipes laid at its expense from the tunnel of the Anconella, or from any other old aqueduct or spring, excepting that of the Campo di Marte, for the purpose of cleansing public drains, watering streets, public gardens, &c., but in no case shall this water be introduced in the mains and reservoirs used for drinking water.

The prices of water for private use shall in no case exceed the following rates :—

	Per Day.		Price.
	From—	To—	
	Gallons.	Gallons.	d.
If the water is obtained from the Garfagnana by water meter	22	132	3·590
	154	220	3·168
	240	660	2·851
	770	1,980	2·640
	2,200	..	2·400
By permanent flow	440	1,100	2·112
	1,320	2,200	1·920
	2,400	..	1·536

As soon as the consumption has reached 1,320,000 gallons per day, the company will be bound to pay the commune an annual sum of 324*l.* for every additional 44,000 gallons of water sold per diem.

The duration of the exploitation on the part of the company fixed at 50 years, will commence from the day on which the distribution of the water into the town for public and private use actually takes place.

The aqueduct shall be constructed of metallic pipes of Italian manufacture.

The project which has been at last selected appears to be very satisfactory in all respects. The water of the Garfagnana is of excellent quality, from deep-lying springs. Moreover, the contract will finally ensure a daily supply of 6,600,000 gallons (33 gallons per head*), so that even calculating at 2,200,000 gallons per diem, the water required for watering the streets and squares of the city (total area, 2,509,708 square yards), as well as for the fountains and other services, there will still remain an abundant quantity for domestic use (22 gallons per head per diem). The city will thus enjoy a larger water supply than the cities of Bradford (24 gallons), Nottingham (18½ gallons), Manchester (21 gallons), Burton-on-Trent (9½ gallons), Leeds (24 gallons), Birmingham (21 gallons), Liverpool (22½ gallons), and not much inferior to Edinburgh (39 gallons), and Dublin (36½ gallons).

The cost of the aqueduct is calculated at 440,000*l.*

Electric
tramways.

In 1879 the Commune of Florence granted a Belgian company the concession for the lines of tramways from the Cascine and along the viali, and at the same time the province accorded a similar concession for certain suburban lines to join the neighbouring communes.

Electric
lighting.

Five years later a concession to an Italian company was granted for the Fiesole and Chianti lines. This company having, however, failed in 1895, a new company was formed to which the concessions of the Fiesole and Chianti lines were transferred. Both companies soon thought it advisable to have a single administrative board, and finally decided by mutual accord, and in the

* Calculating the population at 200,000 inhabitants.

interest of both to purchase the business of the omnibuses, the concession of which expires in 1899, and to apply to the commune for a new concession to extend their respective lines into the city. In consequence in November, 1896, the Commune of Florence entered into a contract and granted them a concession of 50 years duration for the extension and the working of all lines by electric traction, and extended the old concessions in order that they may all expire at the same date.

This concession grants the extension inside the town of the existing suburban lines as follows:—

1. Bagno a Ripoli Line, from Barriera S. Niccolo to Piazza del Duomo.
2. Sesto Line, from Piazza S. Jacopine to Piazza del Duomo.
3. Rovezzano Line, from Barriera Aretina to Piazza del Duomo.
4. Fiesole Line, from Viale Militare to Piazza del Duomo.
5. Chianti Line, from the Station del Campo di Marte to Piazza del Duomo.

The Viali and Cascine will be connected with the Sesto Line, and will also lead to Piazza del Duomo.

The Fiesole Line will be connected through via Niccolò Macchiavelli, and Viale Campo di Marte and Piazza Beccaria, to the Chianti Line.

By the above plan all tramways will lead to the Piazza del Duomo, in the centre of the city, which will thus be intersected by a network including the principal streets.

According to the contract the price shall not exceed 1*d.* from a Barriera (gate) to Piazza del Duomo, and should a direct service from a gate to another gate be established, the fare shall not exceed 1½*d.*, without distinction either of classes or of days.

The Communal Assessor for Public Works in his report to the Giunta, when the question of tramways was brought into discussion in 1896, estimated the cost of the new lines as follows:—

	Cost.
	£
Permanent way	18,160
Street paving, &c. .. .	6,160
Central station for the production of electric energy ..	18,000
Electric wires	22,000
Carriages and electric and other motors	40,000
Contribution for the construction of level crossing at the Fortezza	1,000
Enlargement of via del Pratellino	240
	105,560
Other unforeseen expenses	8,000
Interest on said sums for one year	5,600
Total	119,160

Although the works are almost completed, for the trolley system and the line will be opened in a couple of months, the

question of the system to be permanently adopted has not yet been decided. The trolley system now in operation for Fiesole is said to be unsightly, and not devoid of danger. It is therefore very probable that the system of electric accumulators will be finally adopted.

Electric
lighting.

The public lighting of the city of Florence is principally by gas, under a contract that the municipality made in 1847, and modified in 1854, with a French gas company called, "*Società Civile Lionese per l'Illuminazione a Gas*," for 90 years. Until the expiration of this contract takes place, the commune cannot alter the present system of public lighting. In 1881 the contract was extended to the new parts of the town, and its duration prolonged for nine years.

Of late years endeavours have, however, been made by the municipality with a view to inducing the gas company to replace gas by electricity, but no agreement has been arrived at on account of the burdensome conditions proposed by the company.

In 1890 the municipality decided, in spite of all the difficulties above referred to, to have a few electric lamps in one or two of the principal streets of the city, and adopted, in addition to gas, a temporary plant of electric lighting which is worked directly by the commune under the superintendence of an engineer of the Public Works Department.

This lighting is by no means equal to the exigencies of modern ideas, and is so scanty that only four streets and two squares benefit by it.

The electric current is produced by two dynamos (Thomson-Houston) of 35 horse-power, equal to 16,000 watts, each working alternately, and which are situated at the waterworks alongside the Arno, near Porta S. Niccolò, about 1,610 yards from the quarter lighted.

The nature of the current is continuous and direct. There are 30 arc lamps on the Thomson-Rice system of 450 watts and 10 amperes, each working coupled in quantity, hung from transverse wires across the streets, or else affixed at the top of supports in the squares.

The expenditure incurred by the municipality on this account during 1896 may be reassumed as follows:—

							Per Diem.		
							s.	d.	
An electrician	..	..	..	..	..	..	3	7½	
One engineman	..	..	..	..	..	..	3	2½	
One fireman	..	..	..	..	..	..	2	4½	
One electrician (workman) for repairing lamps, &c.	..	..	..	..	..	..	2	2½	
One assistant to the above	..	..	..	..	..	..	0	9½	
Total daily expenditure for workmen..							12	2½	
							£	s.	d.
Equal per annum to	..	..	..	..	..	..	223	5	2
Consumption of fuel, wires, &c.	..	..	..	..	..	..	291	15	11
Total for 30 lamps							515	1	1
So that the annual expense for each lamp was in 1896							17	3	4

Florence will soon have electric works for furnishing through conducting cables electric power to private houses and firms to be utilised for scientific, industrial, and household purposes. The Tuscan
Electricity
Company,
Limited.

A company was first formed on a co-operative principle by a committee of enterprising gentlemen who entered into arrangements with the electricity company of Nuremberg (Bavaria), formerly Messrs. Schuckert and Co., by which the latter were to apply in their joint names to the Government for the necessary concession, which was obtained in the course of 1897. This, however, was granted on the condition that it should not imply any monopoly, and that other companies should be free to compete if willing to do so. Later on the Schuckert Company, in union with another company of Nuremberg, formed a new company in conformity with Italian law called, "Società Anonima Toscana d' Elettricità," for the exploitation of this concession. Said company, residing in Florence, has a capital in shares of 600,000*l*.

The project of the promoters is based on the eventuality that the electric power produced at the works may be utilised, in addition to electric lighting in private houses, for traction, and for those purposes the current to be generated will have a tension of 600 volts, and when reduced by the semi-transforming system, a tension of 150 volts for distribution to private houses.

The central works are being erected in the *viale Carlo Alberto* near *porta alla Croce* on the ground belonging to the Anglo-Roman Bank, and four dynamos are being constructed at the works of the Nuremberg Electricity Company. They are of a multipolar continuous current type, coupled direct to the steam engines. Each single dynamo will absorb a maximum force of 550 horse-power, and will have a maximum output of 368 kilowatts at 125 turns per minute and a 600 volts tension.

There will be the machinery for the transforming system, designed to feed, at a reduced tension, the part of the conducting wires situated in the neighbourhood of the central works, and will be composed of electric motors directly coupled to generators having the same output as the motors. These continuous-current

dynamos will deliver currents of 150 volts, charging a large battery of accumulators. The latter will act as a current regulator supplying current in the case of a momentary overload and feeding the lighting circuit during the few hours in which the consumption of energy is so low as to make it uneconomical to run the engines.

If necessary one or more branch stations will be established in various quarters of the town, where by the same system of transformation, and by as large a battery of accumulators, the required energy to feed the neighbouring wires will be produced.

The steam-power will be provided by four horizontal compound tandem condensing steam engines, each disposed so as to be coupled direct to a dynamo, producing at the initial steam pressure of 130 lbs. the normal force of 400 horse-power and the maximum force of 550 horse-power. They are now in construction at the Tosi works at Legnano near Gallarate (province of Milan).

According to the contract mentioned above, the Tuscany Electricity Company is bound to furnish the Co-operative Company with as much electric energy as may be required by its members, whilst the latter has no obligation to consume any given quantity of the same. In order, however, to enjoy a special reduction on the prices the latter will have to use at least 1,500,000 ettowattore per annum. Similar low prices will in no case be granted to anybody else except, eventually, the State, the province, the commune or the railway companies.

The prices fixed for the Co-operative Company are the following: on an annual consumption of 1,500,000 ettowattore, 9·8 centimes per ettowattore; of 2,500,000 ettowattore, 8·8 centimes per ettowattore; of 3,500,000 ettowattore, 8·6 centimes per ettowattore; of 4,500,000 ettowattore, 8·4 centimes per ettowattore; for a greater consumption a discount of 2 per cent. will be accorded with a minimum price of 8·2 centimes per ettowattore (at par $\frac{1}{2}$ l. is equal to 5·20833 centimes).

Telephones.

The telephone concession for Florence includes the town and the adjoining suburban communes with a population of about 250,000 inhabitants. The telephone was introduced into Florence by two companies, one Italian and one English, both of which had a concession for Bologna as well as Florence, the Italian one also including Leghorn. In 1883 the two companies amalgamated and formed one company (*Società Telefonica per l'Italia Centrale*) with a capital of 60,000*l.*, which amount very nearly represented their outlay for the three above-named towns. The former concessions granted by the Government had only the duration of three years, after which the Government was at liberty either to renew the concessions, grant new ones or to establish Governmental telephonic communication. To this effect the Government presented a bill to Parliament by which all the existing concessions at their expiration were cancelled without any right of compensation or any obligation on the part of the Government to buy the lines and offices already established. This bill approved by the Lower House was rejected by the Senate. A new bill was then presented and approved by Parliament by which the right of granting

concessions for private or public telephonic communication was entirely reserved to the Government. The law fixed the duration of each concession to 25 years, after which all the plant, line and premises become the property of the State. The Government has also the right after 12 years from the date of each concession to take possession of the concern by paying a sum equal to the average net profit of the three preceding years multiplied by the number of years which each concession has still to run to reach the final period of 25 years determined by law. The same law establishes a tax of 10 per cent. on the gross profits of each concession for public use, the right of free communication for all the postal and telegraphic offices and a reduction of 50 per cent. on the public tariff in favour of all Government, provincial, and municipal offices. As a compensation, however, the companies have the right to fix wire supports on all public and private properties. When a private proprietor refuses to grant the permission a simple application to the prefect is required to obtain the enforcement of the law. The proprietor may ask for an indemnity and if both parties do not agree the prefect decides if and what amount for once only is to be paid. Generally speaking proprietors make no difficulty in granting such permission, which in no way diminishes the value of their property, as all properties are subject to the same regulations.

As soon as the Italian Telephone Companies saw their existence insured for a fixed period they began to reorganise their services by changing the apparatuses, wire, &c., with the object of diminishing their working expenses so as to enable them, besides distributing a dividend to the shareholders, to yearly set apart a sum for the reimbursement of the capital at the expiration of the concession. Experience having proved that these objects could not be attained by small companies on account of the heavy expenses of management and the necessity of having a uniform technical direction induced them to amalgamate themselves and form large companies, which plan is now under execution and will certainly prove very beneficial to the telephonic industry.

Florence is now a branch office of "The Società Generale Italiana dei Telefoni ed Applicazioni Elettriche," which has a capital of 240,000*l.*, and is in possession of the telephonic exchanges of Rome, Naples, Genoa, Palermo, Venice, Leghorn and other important towns, with the exception of Milan and Turin, where the old local companies have formed "The Società Telefonica per l'Alta Italia."

The number of subscribers in Florence is only 900, and the following is the tariff of rates charged :—

6*l.* 8*s.* within 1,093·61 yards from the central office.

7*l.* 4*s.* within double that distance.

8*l.* within three times above distance; and for further distances 5*s.* 8*d.* for every 218·722 yards.

All the apparatus and other instruments were supplied by the Antwerp Telephone and Electrical Works Company. The wire is.

silicium bronze for the lines in the interior of the town, and steel or iron for the country.

All subscribers have the right to complete service, day, night, and Sundays.

The service is performed by girls; hours work, from seven to eight per day with a salary of from 1*l.* 5*s.* to 2*l.* 10*s.* per month. A fortnight leave of absence is granted yearly, and a holiday on each alternate Sunday. Workmen's wages: those employed in the maintenance of apparatuses from 1*s.* 8*d.* to 2*s.* 6*d.* per diem; those employed on the lines from 1*s.* 8*d.* to 2*s.* 1*d.* per diem with a holiday on every alternate Sunday, and with a half-holiday on the remaining Sundays. All workmen are insured against injury or death, which insurance is obligatory by law; they receive in case of injury a full days' wage during their illness, in case of permanent disablement they receive 900 days' wages, and the same compensation is due to their families in case of accidental death. In ordinary sickness they are supported by the company for a certain period according to their length of service, and in no case under three months. Hours of work ten; over and above that time they receive 2*d.* for every extra hour. During the summer months a few days holiday is granted to each of them. Each workman has from 150 to 200 instruments to look after; small repairs are done on the spot, the other at the central office. All the lines are inspected quarterly and repaired where necessary.

Subscribers are in general satisfied with the quality of the service, which falls rather hardly on the employes on account of subscribers not following the regulation of the company, especially the important one of asking the communication by number instead of by name.

The old local company distributed a yearly dividend varying from 2 to 3 per cent., the new company, which has absorbed the others, has not yet published a balance-sheet, and it is expected that the dividend, if any, will not be in excess of the above-mentioned. With a 10 per cent. concession tax and 20 per cent. income tax, the necessity of refunding the capital, a very little extra profit can be available for distribution.

I have received most valuable aid in preparing this report from Mr. A. G. Linari, of the Consulate-General, whose considerable knowledge and experience during many years has so much facilitated the work. I have also to thank the Syndic of Florence for his great courtesy in placing the various departments of the Municipality at my disposal for the information relating to the various public services mentioned herein, as well as the Marchesa Paulucci for her kind aid in the brief description of her splendid collection; my best thanks are also due to Commendatore Edward Philipson, a Communal Councillor and a Member of the Municipal Commission for Public Works; to Commendatore Desiderio Chilovi and Professor Riccardo Gondolfi, the first Prefect of the Central National Library and the second Librarian at the Royal Institute of Music; to Avvocato Arturo Carpi, President of the Co-

operative Electricity Company; and Ingegnere G. E. Caccia, for their courteous assistance and valuable information placed at my disposal, as well as to Cavaliere Francesco Boncinelli, Director of the Department of Hygiene at the Municipality, whose accurate and most interesting report on the sanitary condition of Florence was of the greatest assistance to me.

Among the authorities consulted in drawing up the present report may be cited:—

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REPORT ON THE
STATE OF TRADE IN JAPAN.

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J A P A N.

Mr. Brenan to the Marquess of Salisbury.

(Received at Foreign Office, November 9, 1897.)

My Lord,

I HAVE the honour to transmit a Report on the Trade of Japan.

I have, &c,
(Signed) BYRON BRENAN.

Report on the State of Trade in Japan.

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NOTE.—The silver yen, or dollar, in which values are expressed, has been gradually falling in sterling value in sympathy with silver. During the last few years, roughly speaking, 10 yen have been equal to 1*l.* sterling. Japan is now on a gold basis, and the yen is equal to 2*s.* 0*½d.*

Trade in General.

Contrast
between
China and
Japan.

No two countries could in their commercial aspects be more entirely unlike each other than are China and Japan at the present day. In considering what could be done to promote British trade in the former country I stated as a general principle that this question practically amounted to asking what steps could be taken to improve the condition of the people, for the capacity of the country for buying progresses with the development of its material resources, and this development is at present struggling against every obstacle that bad government can put in the way. Japan affords us the exact converse in every sense of the last proposition. Not only do the people enjoy a constitutional Government, more or less responsible to the people in general, but in all branches of the administration the keenest attention appears to be given to the promotion and publication of every measure that can tend directly or indirectly towards the advancement of the industrial capacity of the people, and to the development of foreign trade.

One of the great departments of the Government presided over by a Cabinet Minister is specially charged with all matters

Official
promotion of
trade.

relating to agriculture and commerce. Almost all others incidentally to their special functions give close attention to the best markets of the world for the supply of their requirements, and by the publication of the sources of supply give lessons to private purchasers, as to where they should go to fulfil their own requirements. The Department of Foreign Affairs publishes numerous Consular reports, the appointment of commercial attachés to the missions abroad is constantly advocated; experts in various trades and sciences are frequently sent abroad for purposes of investigation under Government protection, if not wholly at Government expense; Chambers of Commerce, fostered by the Government, exist in every great city, and substantial pecuniary assistance can generally be readily obtained by any company venturing into new fields of industry. Public addresses on the part of Cabinet Ministers, prominent officials, and public men not in the service of the Government, are frequently founded on the text, "It is by commercial development that Japan's name must be made great in the world, and to secure that development the first step is the advancement of her own material and industrial capacity."

Trade is hampered by no internal and by but few and trifling export duties; no official has any power or scope for illegal exactions; flourishing banks with abundant capital have agencies in every town, and advances are made by them on what from the Japanese point of view is very moderate interest; facilities of transport have already been largely provided both by rail and water, and are yearly growing, and postal and telegraph facilities are abundant, cheap, and fairly efficient. Industrial exhibitions, both national and local, are frequently organised and meet with great support from the Government; and by them not only are producers enabled to see and examine the best specimens of each manufacture or natural product, but the liberal bestowal of medals and diplomas adds a keen incentive to the improvement of what each can already do. Nothing, in fact, that Government patronage and interest can do to encourage legitimately the commercial and industrial tendencies of the people is left undone, and if the Japanese fail to attain the high position among the trading nations which now appears to be a national ambition as strong, as mastering as that for military glory, it will be only the fault of the people themselves and not that of their rulers.

The observer, whose experience of trade has been principally acquired in China, is conscious of a pleasing sense of unlimited freedom as he contemplates the conditions under which trade is conducted in Japan. It is like emerging from a dense jungle on to cleared ground, like passing from a prison yard to the open fields. The sensations of the Dartmoor prison chaplain who at the end of 20 years finds himself transferred to a rural vicarage must be akin to those of the British Consul who passes from China to Japan.

That everything in Japan is not to the liking of the foreign merchant is very true; he has his complaints both against the

officials and the native dealers, but speaking generally trade is unfettered; buyer and seller have free access to each other; and in all his operations the British merchant is able to work in broad daylight. If things do not go well he has but his want of prudence or his ill-luck to blame.

To consider merchandise alone as distinguished from the merchant, I do not see what greater facility can be given for its movement. A London barge placidly sailing down the River Thames, and a boat being dragged up a Nile cataract, do not present a greater contrast than is offered by the conditions under which trade exists in the two countries. In spite of all the British merchant in Japan may have to say against official methods the British manufacturer would indeed be fortunate if China would adopt the economic principles by which the Japanese Government is mainly guided in so successfully assisting the nation's material progress.

Growth of
trade.

The result of such encouragement to trade has been most marked. In 26 years, the period which may be said to have elapsed since the final overthrow of the last relics of feudalism and the firm establishment of the centralised Imperial Government, the value of the foreign trade of Japan has grown from 48,000,000 to 288,000,000 dol.

The gradual development during the last 10 years is shown in the following table, which also exhibits the share of the trade taken by the different countries that have large dealings with Japan.

Table A.—Total Foreign Trade of Japan between 1887 and 1896, with Share taken by the most important Countries.

Year.	Imports from—					Total Exports.	Exports to—					
	Total Imports.	Great Britain.	United States.	Germany.	France.		India.	Great Britain.	United States.	Germany.	France.	India.
	Yen.	Yen.	Yen.	Yen.	Yen.	Yen.	Yen.	Yen.	Yen.	Yen.	Yen.	Yen.
1887	...	51,671,000	18,970,000	3,309,000	4,011,000	2,313,000	5,292,000	3,478,000	22,243,000	922,000	9,328,000	453,000
1888	...	65,510,000	28,693,000	5,649,000	5,261,000	4,125,000	7,689,000	8,710,000	22,618,000	1,618,000	13,636,000	457,000
1889	...	66,173,000	28,067,000	6,143,000	4,888,000	3,334,000	7,334,000	7,064,000	25,283,000	1,638,000	14,288,000	1,341,000
1890	...	81,762,000	26,619,000	6,874,000	6,857,000	3,869,000	8,911,000	5,638,000	19,821,000	846,000	8,354,000	591,000
1891	...	63,804,000	19,996,000	6,840,000	5,127,000	2,834,000	5,614,000	5,633,000	29,796,000	1,457,000	15,120,000	988,000
1892	...	75,903,000	20,780,000	5,988,000	6,375,000	3,620,000	7,682,000	5,921,000	38,645,000	941,000	18,094,000	1,422,000
1893	...	89,285,000	27,929,000	6,090,000	7,318,000	3,305,000	8,679,000	4,995,000	27,739,000	1,380,000	19,682,000	2,471,000
1894	...	121,057,000	42,189,000	10,983,000	7,909,000	4,348,000	10,560,000	5,960,000	43,324,000	1,518,000	19,499,000	3,688,000
1895	...	129,360,000	43,172,000	9,276,000	12,233,000	5,180,000	12,001,000	7,883,000	54,028,000	3,340,000	22,006,000	4,359,000
1896	...	171,674,000	59,251,000	16,373,000	17,183,000	7,682,000	22,517,000	9,012,000	31,532,000	2,972,000	19,027,000	4,537,000

JAPAN.

Growth of
trade under
different
headings.

The system of keeping the custom-house returns does not enable one to trace the development of different branches of trade very far back, but the rapid expansion under various categories from 1890 to 1896 is shown below. These are the 34 headings under which the Imperial Japanese Customs classify the import and export trade.

Table B.—TABLE showing Value of Principal Articles Imported in 1890 and 1896.

Articles.	Value.	
	1890.	1896.
	Yen.	Yen.
Arms, clocks, watches, machinery ..	7,360,000	15,058,000
Beverage and provisions	828,000	2,474,000
Books and stationery	967,000	1,939,000
Clothing and apparel	826,000	896,000
Drugs, medicines, and chemicals..	2,038,000	4,491,000
Dyes and paints	1,178,000	8,777,000
Glass and glassware	394,000	775,000
Grain and seeds	14,313,000	9,661,000
Hair, horns, ivory and skins ..	1,153,000	8,009,000
Metals and manufactures of iron, steel..	5,490,000	14,530,000
" " other kinds ..	1,230,000	8,891,000
Oil and wax	5,248,000	7,098,000
Sugar	8,439,000	13,854,000
Cotton—		
Textile fabrics	4,129,000	11,611,000
Yarns	9,988,000	11,545,000
Cotton	5,365,000	32,573,000
Wool—		
Woollen textiles	7,873,000	18,100,000
Wool	370,000	998,000
Yarn	494,000	1,115,000
Silk—		
Raw	44,000	357,000
Manufactured	574,000	954,000
Hemp—		
Flax hemp, jute.. ..	140,000	708,000
" " yarn	80,000	398,000
Manufactured	175,000	356,000
Other textiles	531,000	1,506,000
Tobacco, and manufactures of ..	215,000	843,000
Wine and liquor	481,000	790,000
Sundries	2,173,000	6,092,000

Table C.—TABLE showing Value of Principal Articles Exported in 1890 and 1896.

Articles.	Value.	
	1890.	1896.
	Yen.	Yen.
Books and paper	276,000	557,000
Drugs, medicines, dyes	2,832,000	2,965,000
Grains, beverages, provisions	5,984,000	13,903,000
Metals, and manufactures of	5,980,000	6,734,000
Oil and wax	358,000	769,000
Silk, floss silk, and cocoons	16,737,000	31,666,000
Skins, hair, shells, horns	227,000	583,000
Tea	6,327,000	6,372,000
Textile fabrics, clothing	4,272,000	20,860,000
Raw material of above : cotton, hemp,		
wool	78	155,000
Tobacco, and manufactures of	135,000	254,000
Sundries	12,664,000	31,756,000

Naturally the progress has not been equal all along the line. During the seven years under review some articles have stood still, others have advanced by leaps and bounds. There are 484 items in the table of imports and 210 in that of exports. Those articles in which a marked increase has taken place are shown in the following tables :—

Great increase
in certain
articles.

Table D.—SHOWING in what Articles of Import a Noticeable Advance has been made in a Period of Seven Years.

Articles.		1890.	1896.
Locomotive and parts. . .	Value in yen ..	660,000	1,621,000
Dynamo-electric machinery ..	" ..	None.	681,000
Sewing machines ..	" ..	14,000	85,000
Spinning machinery ..	" ..	1,036,000	2,992,000
Steam boilers and engines ..	" ..	345,000	823,000
Steam vessels ..	" ..	733,000	1,724,000
Flour ..	Lbs. ..	9,000,000	32,000,000
Salt fish. . .	" ..	224,000	6,500,000
Carbolic acid ..	" ..	150,000	502,000
Alcohol. . .	" ..	None recorded.	8,127,000
Dynamite ..	" ..	203,000	359,000
Chlorate of potash ..	" ..	None recorded.	2,700,000
Quinine . . .	Ounces ..	111,000	248,000
Saltpetre ..	Lbs. ..	1,155,000	2,648,000
Bi-carbonate of soda ..	" ..	2,704,000	4,710,000
Aniline dyes ..	" ..	496,000	1,716,000
Dry indigo ..	" ..	354,000	1,272,000
Logwood, extract of ..	" ..	874,000	2,183,000
Paint in oil ..	" ..	1,581,000	3,285,000
Pig-iron. . .	Tons ..	10,300	38,700
Bar and rod-iron ..	" ..	19,000	50,000
Plate and sheet-iron ..	" ..	6,200	24,700
Iron nails ..	" ..	9,800	17,400
Telegraph wire. . .	" ..	970	6,200
Steel ..	" ..	2,900	5,500
Steel-wire rope. . .	" ..	300	600
Umbrella frames ..	Value in yen ..	9,600	167,000
Lead ..	Tons ..	950	2,400
Tin ..	" ..	120	260
Zinc, sheet ..	" ..	1,640	2,300
Raw cotton ..	" ..	15,500	99,000
Cotton drills, shirting, and cloths ..	Yards. . .	40,889,000	69,890,000
Raw wool ..	Tons ..	510	1,600
Wool yarn ..	Cwts. . .	5,270	11,600
Blankets ..	" ..	13,400	27,900
Mousseline de laine ..	Yards. . .	19,342,000	37,635,000
Woollen cloths. . .	" ..	744,000	2,703,000
Flax, hemp, and jute ..	Tons ..	1,800	5,600
Flax and hemp yarn ..	Cwts. . .	2,350	13,900
Canvas ..	Yards. . .	784,000	1,146,000
Linen ..	" ..	571,000	537,000

Table E.—SHOWING in what Articles of Export a Noticeable Advance has been made in a Period of Seven Years.

Articles.		Quantity.	
		1890.	1896.
Rice	Tons	230	1,120
Sake (rice spirit)	Gallons	191,000	821,000
Raw silk	Cwts.	25,000	44,600
Cotton and hemp carpets	Pieces.. .. .	27,000	662,000
„ yarn	Cwts.	None.	154,000
„ piece-goods	Pieces.. .. .	359,000	2,294,000
Silk piece-goods	„	104,000	499,000
„ handkerchiefs	Dozen.. .. .	827,000	1,729,000
Coal	Tons	644,000	1,329,000
Fans	Pieces.. .. .	14,180,000	22,395,000
Matches	Gross.. .. .	6,725,000	17,980,000

While under the liberal and enlightened policy of the Japanese Government the commerce of the country has been making such remarkable strides, it is worth while examining whether the share which Great Britain and her possessions have secured is equally satisfactory. Keeping to the same series of years, that is 1890–96, a study of the Japanese customs returns for these years shows the following results:—The total imports into Japan in the course of seven years have increased by 90,000,000 yen, and the exports by 74,500,000. In this increase Great Britain and her possessions have taken the following shares:—In imports, Great Britain has improved by 32,632,000 yen, and other British possessions by 17,777,000 yen. This means an increase for the British Empire of 50,500,000 yen, while all other countries put together improved their position by 29,500,000 yen. The absolute increase is thus largely in favour of the British Empire, and I consider that this is the point of view from which to look at the development of trade. If the ratio of increase is taken into account the result may not seem so satisfactory. In the seven years under review the imports from the British Empire have increased by 72 per cent., those from all other countries by 149 per cent., but this large percentage does not necessarily prove that their trade is now large: it is merely evidence that it was small seven years ago. As an example of the erroneous conclusions which may be drawn if merely the ratio is accepted as an index, it is quite correct to state that the imports from Sweden and Norway are now 78 times as large as in 1890, whereas imports from England are only a little more than double, and yet English goods have increased by over 32,000,000 yen and those from Norway and Sweden by only 116,000 yen. Table A showed the progress made by various nations in their trade with Japan. The following table enters more into detail. It shows what are the particular articles in which different countries have made a notable advance during the last seven years:—

Great Britain's) share in the trade.

In what articles the trade of different countries has increased.

Table F.—SHOWING in what Articles of Importation different Countries have made a Notable Advance.

Country.	Articles.	Value.	
		1890.	1896.
		Yen.	Yen
Great Britain..	Machinery	2,361,000	4,586,000
	Locomotives	475,000	1,054,000
	Pumps.. ..	31,000	151,000
	Steam boilers and engines ..	254,000	717,000
	Steamships	616,000	1,315,000
	Printing paper	198,000	375,000
	Chlorate of potash	Too small to be recorded.	376,000
	Paint	106,000	257,000
	Pig-iron	86,000	633,000
	Rails	894,000	2,029,000
	Manufactured iron	1,140,000	2,633,000
	Steel	162,000	634,000
	Lead	240,000	474,000
	Cotton yarn	6,374,000	11,093,000
	„ manufactures.. ..	4,076,000	11,610,000
Germany ..	Woollen manufactures ..	3,510,000	7,923,000
	Flax and hemp manufactures	205,000	683,000
	Clocks, and parts of	21,000	336,000
	Microscopes	4,800	131,000
	Paper	280,000	681,000
	Alcohol	Too small to be recorded.	479,000
	Dyes	330,000	1,355,000
	Iron nails	356,000	939,000
	Steel	4,000	117,000
	Zinc sheets	141,000	279,000
	Sugar	700	1,565,000
	Woollen manufactures ..	1,830,000	5,239,000
France.. ..	Logwood extract	54,000	213,000
	Mousseline de laine	2,451,000	5,677,000
	Wines and spirits	171,000	422,000
Switzerland ..	Watches	662,000	1,661,000
	Mousseline de laine	645	341,000
United States..	Locomotives	43,000	416,000
	Machinery	364,000	688,000
	Watches	52,000	188,000
	Leather	224,000	815,000
	Iron nails	1,800	232,000
	Flour	227,000	930,000
	Kerosene oil	4,214,000	5,282,000
	Raw cotton	352,000	4,252,000
	Cigarettes	73,000	378,000
China	Timber	5,800	149,000
	Eggs	31,000	299,000
	Beans and peas	513,000	1,940,000
	Rice	320,000	1,356,000
	Hides	60,000	240,000
	Raw cotton	2,665,000	8,158,000
	„ silk	35,000	356,000

SHOWING in what Articles of Importation different Countries
have made a Notable Advance—continued.

Country.	Articles.	Value.	
		1890.	1896.
China (<i>contd.</i>)	Flax, hemp, and jute.. ..	Yen. 54,000	Yen. 376,000
	Wool	33,000	185,000
	Oil-cake	189,000	3,212,000
Hong-Kong ..	Sugar	5,360,000	8,759,000
India	Leather	215,000	534,000
	Raw cotton	1,114,000	19,245,000
	Indigo	155,000	1,067,000

In order to make it clear to readers in England in what way the 59,000,000 yen worth of goods imported from Great Britain are absorbed by Japan, it is necessary to explain that the ports open to foreign commerce are six in number, namely, Yokohama, Kobe (or Hiogo), Osaka, Nagasaki, Hakodate, and Niigata. In addition to these there are 13 other ports where trade with foreign countries is permitted under certain conditions, but these ports are only open to the Japanese flag, or to foreign vessels under special charter to Japanese. Some of these special ports have been opened for the convenience of trade with the neighbouring countries of Corea and Eastern Siberia; and others as special ports of export for coal and grain; but except in the item of coal they have at present little interest for our merchants.

Kobe (or Hiogo, as it is officially known) and Yokohama are the two ports where the bulk of the import trade is carried on. Nagasaki comes a long way behind, and its imports are chiefly made up of articles which do not enter into the general trade of the Empire. As a shipbuilding port, manufactured iron, machinery, boilers, and engines figure largely in its lists of imports. Sugar and raw cotton together account for 35 per cent. of its imports. Kerosine oil and bean-cake for another 12 per cent.; while woollen and cotton textiles, lead, zinc, tin, glassware, dyes, drugs, chemicals, clothing, stationery, clocks, watches, scientific instruments, and in some all articles of general merchandise scarcely appear in the list.

The foreign import trade of Osaka is merged into that of the neighbouring port of Kobe. Osaka is a large consumer, but its imports leave the foreign ship in Kobe Harbour, and are conveyed to Osaka either by rail or by water.

Neither Niigata nor Hakodate import general merchandise direct from foreign countries; these ports obtain what they require from Kobe or Yokohama.

Kobe and Yokohama then may be taken as the centres of distribution of foreign goods; and Kobe, although usually

considered as the less important port, has in some respects distanced Yokohama. As a port of entry it is clearly ahead, its foreign imports amounting to 82,000,000 yen, against Yokohama's 72,000,000; while in shipping it also surpasses its rival. The total tonnage entering and clearing to and from foreign countries at Kobe being 1,083,000 tons against 909,000 tons at Yokohama. The British share of this is 560,000 tons at Kobe and 525,000 tons at Yokohama.

Distribution
of goods in
hands of
natives.

Foreign goods after reaching Kobe or Yokohama can only pass into the interior as native owned. Our existing treaty with Japan, which, however, has only two more years to run, does not give our merchants access to the interior, and so he has to dispose of his goods at the port. It is very doubtful whether he would attempt to become the distributor were it otherwise. This part of the business can best be performed by the native, and it is difficult to see how the foreigner could successfully compete with him. The native has every advantage which the foreigner could possess, and many others besides. There is no internal taxation of trade, and if there was it is not the way of the Japanese Government to treat the foreigner more liberally than the native; such inconsistency is only seen in China. There is not therefore in Japan the same inducement as in the former country for the foreigner to seek inland markets, or to give to merchandise the protection of his name up to the time that it passes into consumption. In China the rights secured by treaty to the foreign merchant are often more than the Chinese subject himself enjoys; and in any case the native is more exposed to injustice than the foreigner. In Japan there is none of this; if under the treaties foreigners enjoy certain privileges, the Japanese Government does not handicap its own subjects by imposing on them more onerous conditions.

The dispersion of foreign merchandise then rests with the native dealer; the foreign importer's interests ceases at the port of entry. But the system under which the goods pass from the foreign importer to the native consumer seems to be very unsatisfactory.

The native
go-between.

Whether the merchandise is imported by the foreigner at his own risk for sale to Japanese, or whether it is imported on contract, the foreign merchant in the disposal of his merchandise seems to be very much at the mercy of his native clerk, or banto as he is known in Japan. This banto is the go-between through whom all transactions are negotiated, and in many instances the principal whom he professes to represent is never seen, and in not a few instances is suspected to have no existence at all. Contracts are made on the strength of this banto's assurances, and if the market keeps up all will go well; but if prices fall the foreign merchant frequently finds himself with the goods left on his hands. It thus happened that early in this year the foreign merchants had their warehouses overflowing with merchandise under contract to Japanese who could not be induced to take delivery.

It seems a hopeless task to keep the ordinary Japanese to the terms of a contract. When he finds that the market is going against him, he will put off taking over the goods till better times come, or he will wriggle out of the contract on some frivolous pretext, such as that the mode of packing is unsatisfactory, or the quality is inferior. Attempts have been made to put the law in operation, but this merely lands the foreign merchant in greater difficulties, for then a regular boycott is established, and the merchant is unable to resume business until he has capitulated. Until recently it was customary for foreign merchants to require the native to make a deposit at the time the contract was signed, but some firms, in their eagerness to obtain business, waived this safeguard, and others had to follow suit, or find themselves left out altogether.

Japanese will not fulfil contracts.

It is noticeable how very little intercourse there is between foreigners and natives even in matters of business. Amongst the merchants but few have any knowledge at all of the language, have no acquaintances amongst Japanese business men of good position, and all are very much at the mercy of the aforesaid banto. The position is an ideal one for the unscrupulous native dealer. He orders goods, and if, when they arrive, it pays him to take them over, he does so; if the market has gone against him he throws over the bargain. The foreign merchant explains his toleration of such a state of things by saying that with such uncertainty in exchange between yen and sterling, he could not run the risk of importing on his own account. Now that a fixed ratio has been established between Japanese and British money, it may be that a change will take place in this respect, and that the foreign merchant may henceforth take the profits of a rise, as he has to take the losses of a fall in market values.

Little intercourse between foreigners and natives.

The important question in considering the means of extending our trade, is whether our manufacturers and their Japanese customers are in as close touch as they could be, and whether the resident merchant, in attending to his own business, which, after all, is to make money for himself, may be counted upon to look after the interests of the manufacturers at home? Naturally, he cannot be expected to do so merely from a sense of duty, but does he satisfactorily fulfil the functions of salesman for those who are unrepresented in the East?

Is the resident merchant a connecting link between the English manufacturer and the native consumer?

In certain well-known staples the manufacturer cannot do better than leave the extension of trade to the resident merchant, who, in his own interest, will push business as much as he can, but there are certain kinds of goods which might be profitably introduced, or be made more widely known than they already are. It is here that the British merchant in Japan, in the pursuit of his own immediate business, does not adequately watch the interest of the manufacturer in England.

To introduce an article into the market, to push the sale until it has secured a firm footing, requires a certain sacrifice of time, trouble, and perhaps money. Do the profits seem sufficiently

Resident merchants have little inducement to push new things.

substantial in the future to tempt any local merchants to make the necessary sacrifice in the present? Before he will undertake to introduce any new article, or push any old one, the resident merchant must have some security that he will reap, at least, a good share of the profits. He has no desire to sow, that others may reap, and, unless the manufacturer sees his way to offering some particular firm the inclusive agency, or else a commission on all orders coming from Japan, the manufacturers cannot look to the British merchant in Japan as an efficient auxiliary. He must take his chance of his goods becoming known to the Japanese in the ordinary course, and to orders coming back to him, or to others in the same line of business. The British merchant in Japan does not hold a brief for the English manufacturer in England. To a very large extent, the former is a commission agent. He does not lay in a stock to resell at a profit; trade is not now done in this way. The varying course of exchange has till now prevented a merchant from importing goods to hold. With Japan on a gold standard, exchange will now be steady, but meantime business has got into certain grooves in which it is likely to remain. The best part of import is bought on contract, and then it is only such goods as the Japanese themselves inquire for that are ordered, and both the Japanese dealers and the British merchants at Yokohama or Kobe bestow much more attention to merchandise already in favour than to goods that might possibly find favour with judicious pushing. And, without suggesting any lack of patriotism, the British merchant's first consideration is to get orders or contracts. He makes his commission whatever may be the country of origin of the goods he handles, and whether he deals in British made or German or American made goods, is to him a matter of indifference.

The British merchant largely a commission agent.

Germans push business better than English.

In what is called pushing business, I do not think we are so advantageously situated as some of our neighbours. Our mercantile houses, as a rule, have a well-established business, and are not anxious to venture into new fields, and, moreover, English mercantile men come of a class with a different training from their German confrères. I am aware that here I tread on delicate ground, but when it comes to taking trouble and putting up with disagreeable experiences, the young German does so with more readiness than the Englishman. We have not the class of men who are willing to play the rôle of salesman. In illustration of my meaning, I will relate what occurred to me at a small port in the East, where there may have been a dozen European residents in all. Wishing to obtain an English-made article for my own use, I enquired of an English merchant whether there was a native shop or store where European articles were sold. He replied that, with such a small European community, there was not sufficient support for a "foreign store," and that the Europeans obtained all their supplies from the neighbouring large port. This Englishman had lived several years in the place, and I accepted his answer without demur. In walking through the streets next day I came across a very well supplied "foreign store," kept by a

native. The store was stocked with almost all that a house-keeper could require, a veritable "Army and Navy Stores" in miniature, and the storekeeper obtained his supplies through a German merchant in the port. It is very probable that the English merchant would not have cared for the business, he would have said, truly enough, that it was not in his line; but somehow there always seem to be a German in whose line it is. Far be it from me to criticise our merchants who are now in China or Japan; they are excellent judges of what pays them and what does not. It is upon those who might profitably be there, and yet are not, that I venture to make any reflection.

It is evident that every manufacturer cannot be expected to maintain a special agent in these eastern countries. Some large firms dealing in railway materials, machinery, naval armaments, &c., are doing so, but in these cases one order a year may be sufficient to recoup all the expenses, but between being specially and individually represented and not being represented at all, there is room for many modifications. As has been pointed out by Mr. Longford, whose reports on trade in Japan have attracted so much attention and favourable criticism, the import business in Japan divides itself into two distinct classes. The first is that in the ordinary staples of trade, cotton yarn, textiles, miscellaneous metals, paints, drugs, &c. The second is that in the supply of the requirements of the Government, and of the great railway, shipping, and other joint stock companies. In Mr. Longford's opinion, the import business of the first-class may well be left where it is already, that is in the hands of the foreign merchants in Japan. These maintain close touch with the Japanese middlemen, and both importer and middlemen are ever on the watch for new openings. Competition has reduced all commission and other business charges to such a low standard, that no system of direct agency, either on the part of the Japanese wholesale purchaser in England, or the English manufacturer in Japan, is likely to increase the consumption of foreign goods. I agree with Mr. Longford that this is so in regard to all well known articles, but as I have explained already, there are articles in which a demand has to be created, and if left to the resident foreign merchants and Japanese middlemen, the demand may be a long time in coming. Were it merely a question of augmenting the total quantity of foreign articles purchased by the Japanese nation, I also would say all that can be done is being done now by the local foreign merchant, but that is not the sole question to be considered. Every nation is struggling to get a larger share of the trade, and while foreign trade in the aggregate may go on increasing, we cannot safely leave to chance the share that ought to come to us. If other nations push, and we remain inactive, we shall drop behind. In commercial rivalry almost every device is considered fair, and our manufacturers must be vigilant to see that their goods are not ousted by unfair methods.

In the second class of business referred to above, the British merchant in Japan takes very little share. Especially in Govern-

(1207)

B 2

Import business divides itself into two classes.

In the first are the ordinary staples of trade.

In the second are machinery, railway materials, and Government stores.

ment business the conditions of contract are so onerous, and sometimes so unreasonably interpreted, that the resident British merchant prefers to leave it to Japanese firms, but this does not affect the interest which the home manufacturer should take in its expansion, or the source of supply.

Steady demand for railway material.

The rapidity with which railways are spreading in Japan makes it incumbent on British manufacturers to watch their opportunities in this direction with special attention. There are now in operation 600 miles of State railways, and 2,300 miles of private lines; besides this, there are nearly 1,000 miles more of private lines in course of construction, and charters for further extensions amounting to 500 miles have been granted. According to the Government programme of railway construction within the next 10 years, 26,500,000 yen are to be spent in improving and doubling existing State lines, and within the same period 87,000,000 yen will be paid in constructing new lines extending over 1,220 miles. Private lines will probably grow even more rapidly, for railway companies pay exceedingly well in Japan; the shares of nearly all the companies are at a high premium, and in a country where interest on money runs high, this indicates very profitable working. On the Government lines the net profit amounts to more than 10 per cent. on the capital, and it may be taken for granted that private lines are more economically worked than these. The Japanese have not the capital for all the remunerative works they would like to undertake, and under existing conditions foreigners may not hold shares in railway companies, but when in a couple of years the new treaties come into force, and no distinction is made between natives and foreigners, it may be expected that foreign capital will flow in for railway construction as well as other productive works, and then the demand for railway material of all sorts will increase.

How Government stores are procured.

At one time the English had it all their own way, and all railway materials and rolling stock were ordered from England. This pleasant state of things was partly due to the fact that railways were first introduced into Japan under British auspices, and that the engineers, superintendents, &c., were all English. Recently the Japanese have begun to manage everything for themselves, more especially the placing of orders for materials. Perhaps also other nations have been a little more active and pushing, for during the last two years there has been a tendency to give orders to America, especially for locomotives. The explanation, satisfactory in one way, was that our makers were already too busy to undertake the work within the time specified by the Japanese, but orders have a way of going in a groove, and it behoves our manufacturers to see that they retain the good position in which they are now.

For all materials required in Government departments such as naval yards, military arsenals, and State railways, tenders are invited from firms on the official list, the only qualification required before a firm's name is inscribed on the list being that it has been engaged in this sort of business for at least two years.

It is the rule for the department inviting tenders to specify certain makers from whom the materials must be obtained, and none but the best known makers, and not always all of these, are mentioned. As a rule a sufficient interval is given to enable would-be tenderers to send home specifications, and to obtain quotations by telegraph, so that little risk in this direction is run by firms who tender. They can calculate to a point what it will cost them to lay down an article, and then add their own commission. The only risk run is that the Japanese inspectors may reject the article as not up to standard, even after it may have passed the test before a fully qualified person in Europe. In this respect the Japanese officials are critical to an unreasonable degree, and will, without regard to the purpose for which material may be required, reject an article which would be at once accepted by any person whose training had been practical as well as theoretical.

Persons who tender are required to make a small deposit at the time of tendering, and if the tender is accepted, this deposit is increased to 10 per cent. of the amount, which is subsequently refunded when the contract is completed. In some instances, where failure to complete the contract would cause serious delay or loss, the successful tenderer is required to deposit a heavy sum as security.

For the reason stated above, that is because the profits are incommensurate with the risk and trouble, foreign firms in Japan refrain from tendering for Government supplies, and this business is chiefly in the hands of half a dozen Japanese firms. There is no reason to believe that Japanese firms are in any way favoured; the business is done in a perfectly open and fair manner, and all without regard to nationality, have to take their chance of the official inspector's exacting requirements, but it is possible that when a hitch occurs at this stage of the proceedings, the native, better than the foreigner, understands how to bring him to reason.

Whatever may be the nationality of the successful tenderers, it is satisfactory to know that the bulk of the materials required, in Government establishments is procured in England. Government departments, and in most cases private companies as well, insist on having the best article of its kind, and where quality is taken into consideration before price we are ahead of other countries.

With such satisfactory results it may seem superfluous to criticise the business ways of our English manufacturers. It is, nevertheless, a subject of remark if not precisely of complaint that the English makers show less eagerness to secure orders than their continental or American rivals. When an English manufacturer believes, and from the nature of the case he can usually judge correctly, that the inquiries which are being made from different quarters all have reference to one particular order, he may decline to give quotations to more than one inquirer; or he may answer that his terms are well known to the Japanese Government as he has already executed similar orders before. Where a firm of

Bulk of
Government
materials
come from
England.

British
manufacturers
are not ac-
commodating.

manufacturers has a special agent in Japan there may be good reason for leaving all business exclusively in his hands; but it seems unwise to give discouragement to local men who in the hope of getting a commission for themselves are willing to take an infinity of trouble to make a sale to some Government department or large private company. A pushing local firm that meets with discouragement at the first venture is not likely to approach the same makers again unless he finds that all makers are equally unresponsive.

From what I could gather it would appear that our English manufacturers look for in others the same business qualities as they possess themselves, and expect that a customer shall have a full knowledge of what he really wants. Japanese in responsible posts, whose technical knowledge however may not come up to the requirements of their position, do not meet with adequate assistance from our British makers in formulating their specifications. If to the critical eye of the British technical man the inquiry betrays a certain amount of vagueness and ignorance on the part of the Japanese applicant, the application is likely to be set aside as not savouring of real business. The more eager continental rival will detect a possible customer, will make practical suggestions as to what the enquirer really requires, and will keep hold of him until he has secured an order or until the case proves to be hopeless. There are also occasions when for some reason of their own the Japanese require an article made in some way which experience has proved not to be the best; still they wish to have it, and will not have the improved kind. To give an instance which was brought to my notice. An arsenal required a crane with the lifting machinery of a certain description, not now considered as the most serviceable. Application was made to an English maker who refused to supply the out-of-date article. A German maker accepted the order, and thus obtained an opening which he will probably turn to good advantage. Again, the sewing machines of a well known English maker were in possession of the field, and might have remained there had the makers thought it worth their while to humour the fancy of their Japanese customers. For some reason of their own the Japanese wished to have a machine with the arm somewhat higher than it is usually made. The English makers thought that the change would be a disadvantage in working the machine, or at any rate that it was unnecessary. Some German makers did not mind that, they saw that in consulting the Japanese preference there would be an advantage to themselves; and now the German made sewing machine is seen everywhere.

But the loss of business caused by this unbending adherence to established standards is not limited to the makers who refuse to be accommodating. It sometimes reacts upon others. One British firm in Japan lost a good order for rails, and consequently some English maker also, because with the rails it was necessary to supply a certain kind of crossing and switches which are not now made in England. The English firm had hitherto got over

the difficulty by supplying the rails from England and obtaining from the Continent what the British ironmasters refused to make; but their continental rivals here saw their opportunity. The order had to be executed as a whole, and if the British firm could be prevented from obtaining the switches the order would have to be transferred to such parties as could supply all that was desired; so a paternal Government applied a little pressure to the continental maker of the right kind of switches, and he refused to sell any more to the British firm, who thus were unable to fulfil their orders, and in the end both switches and rails were procured from the Continent.

Government business, as has been before remarked, is in the hands of some of the great Japanese firms in Tokio, and it is by working in association with them that British manufacturers have a chance of doing business. The principal joint stock companies do not as a rule invite tenders publicly; they make inquiries from persons known to be engaged in the trade or to represent well known manufacturers in Europe. It is in catering for this business that English manufacturers require to be specially represented by experts in the principal classes in machinery, men who should be ready to supply merchants with information on technical points regarding all kinds of machinery that may be in demand from time to time.

Makers of machinery should be represented by technical experts.

In either of the two classes of business indicated above, where it may not be considered worth the expense for any one firm to send out a special representative, it still seems possible to attain the same end by some system of co-operation. Rather than let the business go by altogether it would be better to devise some means by which several manufacturers could combine to maintain one common agent in Japan, and we should beware of the danger of allowing the enemy to capture the position while we are wasting time in discussing how we shall divide the spoils. Where technical education is essential, it would be necessary for several manufacturers to join hands in maintaining one agent, but in pushing a general trade or in introducing new articles, what is required is an energetic salesman who will advertise his wares, and having brought them to the knowledge of the Japanese public, can then refer them to some local merchant as permanent agent from whom regular supplies may be ordered. In this latter case several manufacturers in totally different lines of business could combine without running the risk of one firm being more strongly recommended than the other. If I may be pardoned for using the names of well-known firms, merely in illustration, the merits of Huntley and Palmer's biscuits, Scott's Emulsion, Stephen's Ink, and Brooke's Soap, might well be proclaimed by one and the same agent, who could leave a sample in every town, and appoint as agents firms already established at the principal ports. And here I would remark that success must depend largely on the judicious selection of the local agent. It is not sufficient to appoint a substantial, well-known, and prominent firm. Such a firm probably has its hands already full, and is

In general trade, first create a demand and leave the rest to resident merchants.

Large firms not necessarily the best agents.

doing such a large business that it will not go out of its way to nurse a new enterprise. For new business, the struggling and active firm of good repute is preferable, a firm to whom business will not come without exertion. The old-established firm already engaged in a prosperous business has traditions, and old-fashioned ways, and as long as success attends its methods it will keep to them, and refuse to strike out in new directions.

Home
manufacturers
must secure
payment
before parting
with their
goods.

But above all things, merchants and manufacturers in England should be careful to arrange for payment before the goods are shipped. If goods are allowed to reach Japan before payment has been secured, in some cases the buyer might refuse to take delivery unless a substantial reduction be made in the price already agreed upon. It is inconvenient to the seller to go to the expense of shipping the things home again; and in the case of bulky iron merchandise for which there is not a general demand, a too confiding merchant might find himself compelled to accept almost any price offered to him. Merchants residing in Japan, knowing the standing of the parties with whom they are dealing, may take these risks, but the home manufacturer cannot be too strongly cautioned to be on his guard.

The desire to
pass over the
heads of
foreign
merchants.

A desire on the part of the Japanese merchant, which the Government takes every occasion to stimulate, is to so conduct international trade that the services of the foreign merchant in Japan can be dispensed with. They reason that all Japanese exports are sold in foreign countries and all imports bought from foreign countries, and they see the foreign merchant at Kobe and Yokohama making, as they believe, a handsome income merely by acting as intermediary between the buyer and seller. If the Japanese could buy or sell over the head of the resident foreign merchant all these profits which are now secured by the foreigner would be so much more into the Japanese pocket.

Japanese gain
more than
they lose by
employing the
foreign
intermediary.

The amount of direct trade, that is the import and export of merchandise independently of the agency of the resident foreign merchants, now done by Japanese merchants is only 20 per cent. in exports and 30 per cent. in imports. It is slowly growing, but not rapidly enough to satisfy Japan's public men, who are ever exhorting her merchants to study the condition of trade in foreign parts in order that they may not leave to foreigners all the profits of international commerce. The Japanese merchant in his own interest has no need to show more enterprise than he does now. In imports he can command the services of experienced and honourable foreign merchants who will for a commission, brought down to a minimum by competition, land at his door whatever he desires, without any risk to the importer, and without any payment being required until the Japanese merchant has satisfied himself that he has what he ordered; while in the case of exports the products and manufactures of the country are placed abroad to the best possible advantage by men who have a thorough knowledge of the circumstances under which such goods would sell, and who moreover take all the risk involved in the various transactions. The trade of the country would never have reached

its present proportions had it not been for the foreign resident merchant; and what is true of the past will remain true for a considerable time to come until the Japanese obtain the knowledge and foresight in business transactions which can only be acquired by experience, and succeed in inspiring the commercial world with confidence. Their credit is not at present sufficiently high for success in their direct dealings with foreign countries, and the difficulty of financing their transactions more than counterbalances the gain they make by saving the commission they would otherwise pay to the foreign merchant.

So much importance does the Government attach to this question of direct trade that it recently requested the Tokio Chamber of Commerce to inquire into the causes which were impeding its development. The Chamber's report attributed the want of success in this direction to four principal causes. Firstly, the imperfection of banking facilities; secondly, the high rate of interest in Japan which is about 7 or 8 per cent.; thirdly, want of information on the part of those engaged in direct trade about conditions of commerce in foreign countries; fourthly, want of uniformity and tendency to deterioration in quality in the manufactures exported from Japan.

The first and fourth are the real difficulties. The amount of business done with foreign banks by Japanese is insignificant; it can scarcely be said to be an item in foreign banking. No foreign bank would buy a bill drawn on a Japanese firm unless the firm had previously opened a credit, and before it could do so it would have to be guaranteed by a Japanese bank of good standing. No Japanese bank will take such a risk without fully protecting itself by requiring collateral security, or deposit of Government bonds to the value of the amount at stake. The Japanese merchants in financing business meet with difficulties which are unknown amongst Chinese merchants. No firm in Europe or America would at present rely on a Japanese merchant faithfully executing a contract for articles of Japanese manufacture, or would authorise the Japanese merchant to draw a bill on shipment of the goods. Until the Japanese merchant has established his reputation he must remain content to sell to the foreigner on the spot who is in a position to exercise the precaution necessary for his own protection; or he must ship to foreign countries at his own risk, and place his merchandise on the market there.

Industrial Japan.

Much to the satisfaction of Japanese public men who are watching the expansion of the commerce of the country they find not only that it is increasing at a rapid rate, but the increase is in a direction which shows that Japan is becoming an industrial country, for each successive year the quantity of raw material entering the country and of manufactured articles leaving the

Reasons why Japanese can not do direct trade.

Japanese merchant has no credit.

No trust can be put in Japanese merchant.

Japan becoming a manufacturing country.

country forms a greater proportion of the imports and exports. The population is increasing at a rapid rate from 33,000,000 in 1872 to 42,000,000 in 1896, and as Japan is not by nature a country suited for agriculture, and already her population is denser than that of many European countries, the means of livelihood in the future must be sought in industrial development rather than in agricultural resources. This is being earnestly put before the people by the Press and leading men in public addresses, and the legislation of the country is directed to hastening the process of converting Japan from a purely agricultural country to one whose chief industry will be manufacturing. In 1872 the whole value of manufactured articles exported by Japan did not amount to 500,000 dol.; in 1896 it reached 45,000,000 dol. or 40 per cent. of her total exports. In the earlier year the whole import trade may be said to have been in manufactured articles, now the value of raw materials imported into the country amounts to 46,000,000 dol., or some 30 per cent. of her total imports. It is chiefly in her trade with Asiatic countries that this increasing importation of raw material is noticeable. Speaking generally, Japan's trade with these Asiatic countries may be said to consist of imports of raw materials, and exports of manufactured articles, and the way in which this trade is developing is shown in the following table:—

Export of
manufactured
goods
increasing.
Import of raw
material
increasing.

TABLE G.
IMPORTS.

From—	Value.	
	1890.	1896.
	Yen.	Yen.
Hong-Kong	5,496,000	9,131,000
China	8,839,000	21,344,000
British India	8,911,000	22,517,000
Corea	4,364,000	5,119,000
Asiatic Russia	465,000	1,319,000
Philippines	255,000	1,805,000
Indo-China and Siam	226,000	1,877,000

EXPORTS.

To—	Value.	
	1890.	1896.
	Yen.	Yen.
Hong-Kong	9,366,000	19,966,000
China	5,227,000	13,824,000
British India	591,000	4,538,000
Corea	1,251,000	3,368,000
Asiatic Russia	246,000	1,781,000
Philippines	197,000	188,000
Indo-China and Siam	21,000	40,000

The change taking place in Japan's industries may also be traced in the importation of machinery, which indicates that Japan is making steady progress in manufactures. Up to 1888 Japan had bought very little machinery. From that year down to the end of 1896 she had purchased from abroad machinery to the amount of 25,000,000 dol., and in addition to what was imported the Japanese have been making a large quantity for themselves from foreign models. Numerous foundries are in active work in many parts of the country, and the Japanese are becoming independent of foreign countries for the simpler forms of machinery. It has to be remembered that unlike many other articles, of which the annual importation represents the annual wear and tear or consumption, machinery as a producer of manufactures is cumulative, and the importation of several consecutive years may be regarded as representing at any given moment Japan's capacity as a manufacturing country.

Import of
machinery
increasing.

There are some among her public speakers or writers who are sanguine enough to foresee the time when Japan will supply the markets of Europe with articles of European type, but her more moderate thinkers are satisfied with less far reaching results. The counsel they give to Japanese manufacturers is to reserve Japan's special productions in which she excels other countries, such as silk, tea, artistic manufactures, and articles requiring great expertness of fingers, for the more civilised countries of Europe and America. Japan, they argue, may easily beat these countries in articles where artistic skill and hand labour play a large part, but to compete in their markets with mechanical manufactures in which they are themselves so proficient is in their opinion for the present out of the question. As to the semi-civilised nations of Asia, Japan's endeavour should be to supply them with two classes of merchandise; first, such articles as Japan already manufactures for her own use, and secondly, articles imitated from foreign patterns and designs, which are already in demand in Asiatic countries. Japan must begin with ruder articles, and gradually advance to better and finer articles. The commercial policy advocated by those in authority is to strive to attain perfection by assiduous practice, and meantime to sell the work of their 'prentice hands to those semi-civilised peoples who are satisfied with cheap and inferior commodities.

Japan as a
competitor in
Eastern
markets.

To ensure commercial supremacy in the East is the avowed ambition of Japan's leading men, and to China as a great market to take off Japan's manufactures, present and future, their eyes are eagerly turned. There is in the capital a Government commercial school, which was founded some years ago to qualify young men to engage in trade in Europe and America. One of the leading members of the Council of the school recently delivered a lecture, in the course of which he laid great stress on the insignificant part which Japanese merchants were taking in the trade between China and Japan; and he certainly did not understate the fact, for not only is all the trade between the two countries in Chinese hands, even in Japan, but Chinese are

Japan looks
to China as
her best
customer.

Japanese at present not qualified to trade in China.

establishing themselves in positions in Japan, which the Japanese have no excuse for allowing them to occupy. Some portions of the lecturer's address are worth quoting, as they throw a side light on the position which Japan aspires to take up in China. After admitting that the commercial education bestowed upon the pupils of the school, however well adapted it may be to trade in Europe or America, does not equip a man for business in China, he advocates the addition of a special department to train young men for the Eastern trade. "Very few Japanese," he states, "can speak the Chinese language, and what is needed are men who will go into the interior districts of China, studying the local dialects, wearing Chinese dress, eating Chinese food, and accustoming themselves to Chinese style of life. At present, those who are engaged in trade in China, being mostly graduates of the high commercial school, can speak English well, but do not understand the Chinese language at all. Owing to their previous training they look down on Chinese ways and customs, and they live in an extravagant way. They wear good clothes, live in fine European houses, eat delicate food, and drive out in carriages; consequently their expenses are great, and their profits are small. Japan looks to China as a great customer in the future, and it is a country well worth cultivating, but in order to do this successfully it is necessary to have a class of Japanese who will spread themselves in China as retail traders introducing Japanese wares. For China, what is wanted is not the young man highly trained in a commercial school, and emerging therefrom with ideas above his calling. Men are needed who will come down to the Chinese level, and not feel ashamed to dress and eat like Chinese. It is possible that Formosa, now that it has become Japanese territory, may serve as a useful training ground for such men. Business men who have had reverses at home are now emigrating to Formosa in the hope of bettering themselves. In this they will be disappointed, and they will be driven to take to coarse food and clothes, to live in houses of Chinese style, and to learn the Chinese language. Being on Japanese soil they will resign themselves to this fate without any feeling of humiliation, and then they will be qualified to go forth into China and become pioneers of commerce."

Japan's advantage in being able to send small traders to China.

If Japan's expectations are ever realised by her becoming the chief purveyor of China's wants in various kinds of manufactures, it is possible that the suggestion here put forth may be of great service to the trade of Japan, for she will always have a large class willing to leave their country on the prospect of a very slight improvement in their condition, and in this way Japanese goods can be introduced and pushed in China much more successfully than the European article, assuming price and quality to be about equal. There are now a good many Japanese peddlars in Corea earning a bare living, but they are causing Japanese wares to become known in that country. If Japan sees her chance of engaging in commercial competition with European countries she will have this undoubted advantage. The English retail trader

we are not likely to see in the interior of China—much less the pedlar—and we must leave the work of introducing new goods in the country to Chinese agency, which, however satisfactory it may be when a trade has once been established, is not a good instrument for breaking new ground.

After all that has been said about Japan's rapid development as a manufacturing country, and her prospects of not only ousting European countries from the Asiatic markets, but even invading us on our own ground, a certain sense of disappointment, or to some it may be a feeling of relief, is experienced when one comes to look a little below the surface. If we take the statistics of Japan's trade, which are prepared in a very systematic manner, we find certainly that her exports to foreign countries have increased enormously in the last few years; but an analysis of these exports show that with the exceptions to be presently noted it is not so much in any new direction that Japan's commerce has increased, but that her staple products are being exported in ever-increasing quantities. To take some of the principal constituents of her export trade the following table shows the ratio in which they have increased in the last nine years, a period during which the total export trade increased by 79 per cent.

Japan over-rated as a manufacturing country.

TABLE H.

Articles.	Increase in				
	Nine Years.				
	Per cent.				
Rice.. ..	..	..	..	..	500
Sake (spirit)	..	..	..	..	474
Fish oil	..	..	..	..	433
Raw silk	..	..	..	..	89
Manufactured silk..	..	..	..	..	237
Coal	..	..	..	..	85
Fans	..	..	..	..	135
Timber	..	..	..	..	151

And rice, silk, and coal alone account for an increase of 36,000,000 yen.

Cotton yarn, cotton textiles, matches, glassware, and umbrellas are manufactures which are comparatively new to Japan, and in these she competes very successfully with western countries in neutral markets. There are doubtless several other articles which at one time she imported from foreign countries for her own use, and for the supply of which her own industry has now made her independent of the outside world; but in none except the above has she yet succeeded in competing with the older manufacturing countries in outside markets.

Articles in which Japan competes with the West.

It is curious that even in certain articles which she has learnt to make for herself the importation from abroad still continues in increasing quantities. The following list gives some of them:—

Japan continues to import articles which she can make herself.

TABLE I.

Imported from Foreign Countries.	Value.	
	1890.	1896.
	Yen.	Yen.
Balances and scales	13,000	21,000
Clocks and parts of clocks	299,000	460,000
Carpenter's and smith's implements ..	87,000	138,000
Pumps	39,000	199,000
Watches	735,000	1,897,000
Hosiery	107,000	139,000
Blankets	572,000	1,932,000
Lamps	56,000	58,000
Soap	51,000	53,000
Cotton yarn	9,928,000	11,372,000

The prospects of Japan-made cotton-yarn capturing the China market have been discussed elsewhere. It is more probable that while Osaka and Bombay are competing for the prize, the Chinese operative will arise and seize it for himself.

Japanese
cotton textiles
in China.

Cotton textiles, to some extent, find their way out of Japan, principally to China, but this is not at the expense of any European country. The 1,000,000 pieces of Japanese cotton cloth imported into China do not to this extent replace Lancashire goods, but they come into rivalry with goods of the same kind made in China. They are the narrow width strong cotton cloths which in China and Japan are made in handlooms by millions of yards, and which our English manufacturers have never succeeded in producing at the price. It may seem strange that the product of the Japanese handloom should be able to undersell the Chinese article; labour for labour the Chinese is the cheapest, but the explanation probably is that the Japanese weaver can get his yarn more cheaply than the Chinaman. In any case, compared to the consumption of English cotton cloths in China, Japan's contribution is very small. The Japanese material is valued at 1,000,000 dol., while England sells to China over 23,000,000 dol. worth.

Large export
of matches.

Glassware.

Umbrellas

Manufactured
articles
exported by
Japan.

In matches, Japan not only satisfies her own wants but largely those of China, the Straits, India, and other countries; and here it must be admitted she has completely beaten the rest of the world. Her glassware is of the commonest quality, but it suits the requirements of her own people, and China, India, Corea, and Asiatic Russia purchase it to the value of 446,000 yen. Of umbrellas of the European pattern she sends away nearly 2,000,000 chiefly to China, the Straits, and India; but in order to turn out these Japan has to import umbrella frames to the value of 167,000 yen. They are of the most inferior quality, as may be imagined when it is stated that the average price is 1s. a piece. The other manufactured articles which Japan exports will be seen at a glance in the following table:—

Table J.—EXPORTS of Japanese Manufactured Articles during the year 1896.

Articles.	Value.
	Yen.
Paper	557,000
Imitation leather, made of paper ..	59,000
Drugs (including camphor)	2,000,000
Beer and other beverages.. ..	103,000
Sake (native wine).. .. .	268,000
Soy (sauce)	67,000
Fans	694,000
Floor matting	3,057,000
Screens	447,000
Umbrellas	774,000
Porcelain	2,000,000
Fancy wares	2,940,000
Straw braid	2,235,000
Oil and wax	769,000
Brass and copper manufactured articles	2,788,000
Iron manufactured articles	450,000
Matches	5,000,000
Carpets	1,152,000
Cotton goods—	
Yarn	4,029,000
Manufactured	2,226,000
Hosiery	178,000
Silk goods, manufactured	12,600,000
Hats and caps	105,000
Boots and shoes	24,000
Cigarettes	82,000
Soap	114,000

Except in the two or three important staples already referred to it will be seen that this table affords no indication that Japan is becoming a dangerous competitor with the West.

The enterprise of the people, aided by their self-confidence, causes them to believe that they can succeed where other countries have succeeded; and in their first attempt at imitating our manufactures they come near enough to perfection to attract attention; but in many cases they seem satisfied with having proved to themselves that they can do what Europeans have done, and having achieved so much they revert to the business-like habit of only doing what pays. From bicycles to locomotives they have succeeded in making fair imitations of Western articles; but there the matter ends. It is pleasing to them to know that they are not less expert than Europeans; but business is business; and the pleasing illusion has to give way before the logic of profit and loss.

One great defect stands in the way of Japan as a manufacturing country. As soon as the superiority of an article, or its cheapness, has won for it a favourable position in trade, the desire seems irresistible to lower the standard and to produce an inferior article. In such important business as silk manufactures, matting, matches, carpet making, this has been felt and the attempt

Japanese think they can make anything.

Tendency to deteriorate in all articles.

Chinese more
careful to
maintain a
high standard.

↓

thus to gain a little extra profit must have caused heavy losses to the trade as a whole. In this regard the contrast between China and Japan is very marked. In China, as elsewhere, there are plenty of men who will try to overreach their customers, but the foreign merchants after a little experience confine themselves in their dealings to men of good repute, and then, be it silk, tea, matting, or any other commodity, a large proportion is accepted on the faith of the Chinaman's honesty. From Canton, for example, thousands of rolls of matting are shipped to America on account of foreign merchants at Canton who never even see the merchandise before shipment. In Japan every roll is opened out and carefully inspected yard by yard. Gradual deterioration seems the inevitable fate of all articles of Japanese manufacture. As a British merchant of many years' experience put it to me, "the fatal defect of nearly all Japanese manufactures is want of thoroughness in finishing with great variation in evenness of quality, so making the purchasing of goods on standard samples almost a matter of impossibility; a close and rigid inspection of the bulk is a *sine quâ non* if you wish to keep out of trouble with the people sending orders from the other side."

The Government is well aware of the injury that this is causing to native industries, and by legislation it does what it can to combat it; but until it can be brought home to the Japanese manufacturers themselves that honesty pays in the long run their wares will always be received with distrust.

Loss of fish
curing
business.

One striking instance of the Nemesis that overtakes dishonest dealing is the decline of the fishing industry. Bad curing and consequent loss of market is what has made fishing so unremunerative; and the innocent fisherman who is now to receive a grant in aid from the Government, has lost his profitable occupation through the dishonesty of fish curers and packers. In the days before the Restoration, when Japanese commerce was restricted to China and Corea, great care was taken in the process of curing, and Japanese marine products enjoyed a high reputation in China. In those despotic days the Rulers of Japan exercised the utmost vigilance in maintaining the fame of Japan's marine and other products. The export trade to China at that period took place from Nagasaki, and at that port was established a "Bales Inspection Office," whose duty it was to inspect every commodity done up in bales and intended for exportation. All were opened and those that did not come up to standard were rejected and retained for home consumption. Every bale that passed muster bore the stamp of the official inspector, and was bought on the faith of this stamp. The marine products exported to China were then always of excellent quality, and enjoyed the confidence of consumers. Owing to the reckless mode of curing now prevalent, confidence has been lost, and the credit of Japanese marine products is completely destroyed in China. The supervision exercised by official inspectors in the feudal days has now devolved upon the foreign merchant in Japan, and Japanese manufacturers will have to make considerable changes before they can successfully place their wares abroad without this supervision.

The commercial and industrial expansion during the past decade has proceeded with a rapidity entirely out of proportion to the increase in the supply of men capable of conducting business according to the requirements of the new career upon which the nation has just entered. Transition from one condition of life to another of a wholly different character cannot be smoothly effected by any people in the course of a decade or two. It will take generations before the nation will have succeeded in accommodating itself completely to the requirements of the new industrial civilisation.

Industries of Japan in a state of transition.

The cheapness of labour has always counted as a factor very much in favour of the Japanese artisan. In most industries where machinery is largely used, the price of labour has not a marked effect on the cost of the output, but even such advantage as Japan formerly possessed is passing away.

Price of labour increasing.

Wages are rising very fast, in many trades they are 50 per cent. higher than they were a few years ago. The cost of living is rising; and the standard of comfort and luxury is improving. Coal, which figures so largely in the working expenses of all factories, has nearly doubled in value, and at the present rate of increase the time does not seem far distant when Chinese coal will be used in Japan.

But if there is no reason to take alarm at Japan's achievements as a manufacturing country, or to fear that the superiority of her wares is going to drive ours out of the market, we may yet be injured by inferior articles being passed off as "best English make,"* for in their fondness for imitating foreign articles some ingenious Japanese go so far as to imitate labels and trade-marks and manufacturers' names. The Japanese purchaser evidently has not much faith in the worth of his own country's imitations of foreign articles, for these have to be palmed off on him as imported from abroad.

Japan a producer of spurious imitations.

Great activity has been shown in commercial and industrial undertakings during the last two years, but the number of new joint stock companies that have been formed, and the capital they were announced to represent must not be taken as the measure of commercial advancement. Bubble enterprises, and scheming company promoters exist in Japan as elsewhere, and many a company never went beyond the initial stage of collecting the first call from a too sanguine and confiding public. For a short time there was a mania for starting joint stock companies for railways, banks, insurance, manufactures, and many other ventures to an extent far beyond the resources of the people. Gambling in shares set in, and shares in bubble companies were quoted at several times their nominal value, in all of which the banks assisted by making advances on worthless share certificates. All this was mistaken for industrial activity and tended to present Japan as a new rival and a dangerous competitor in all manufacturing indus-

Fictitious commercial and industrial activity.

* On the 20th October, 1897, a Protocol was signed between the Governments of Her Majesty and Japan for the Protection of Patents, Trade Marks, and Designs in the latter country.

Osaka the
chief seat of
industry.

tries, but the reaction has come, and we can see that the Japanese are much the same people as they were before.

It is in Osaka that one may hope to obtain a view of the present state of Japan's industrial development. This city has always been foremost in commerce and industry. Centuries ago it was the great entrepot whither the feudal lords sent the products of their provinces for sale, and to this day other parts of the Empire are dependent on Osaka for market quotations; and these quotations are proclaimed literally from the housetops. At certain hours of the day a curious sight is to be seen in this most advanced city of Japan. Men standing on platforms on the roofs of certain buildings may be seen vigorously waving flags of different colours—a few waves from left to right, a sweep round the head, half-a-dozen flourishes in the reverse direction, are so many market quotations flashed to different offices in the city, and to other stations for repetition to more distant parts of the country. A curious survival of an ancient method this seems, in a city where telegraph and telephone wires cross and re-cross every street. In mediæval Peking it does not seem an anachronism to entrust to pigeons the transmission of bank quotations, but in Osaka, where telegraph boys in neat uniform are every moment seen hastening through the streets at a smart run, and where messages through the telephone may be sent for a few cents, this flag-signalling seems very much out of date. But Osaka is full of such contrasts. Under the shadow of a spinning factory may be seen an old woman diligently ginning cotton by pedalling an old wooden machine; and in every street may be seen shops where men are polishing rice by jumping on and off a balanced beam.

Factories in
Osaka.

At one time in Japan's history when the seat of Government was transferred to Yedo, that is the modern Tokio, the commercial supremacy of Osaka seemed to be in jeopardy, but the industrial capacity of the people and the natural advantages the city enjoys from its geographical position, sufficed to maintain it as the commercial centre of Japan. In more recent years, when, after the Restoration, Japan renounced her exclusivism and allowed herself to have free intercourse with the civilised West, the Osaka men were the first to have recourse to occidental science for the development of their industries. At the present moment it is estimated that 20,000,000 yen are invested in industrial establishments, and a similar amount in banks, and in this respect Osaka is far ahead of any other city. A recent official return states that there are 4,962 factories large and small, and 1,370 factory chimneys. In these are employed 31,400 men and 27,900 women. Besides these, there are 19,000 weaving establishments with over 30,000 hand looms, giving employment to 5,600 men and 40,000 women weavers.

Weaving in
Japan.

Throughout Japan it is computed that there are 600,000 hand looms, employing 48,000 men and 895,000 women. These looms are engaged in weaving silk, cotton, hemp, and jute. In the article of cotton, the province of Aichi is the greatest weaving district; it turns out 15,000,000 pieces of cotton cloth, the total

Table K.—TABLE

Number.	Spindles.		Total.	Working Days.	Hours per Day.	Average Bin	Price Realized per Bale of 16's.
	Rings.	Mules.					
							Dol. c.
1	49,003	...	49,003	26	22	26	91 30
2	34,752	...	34,752	27½	22	16	88 00
3	15,267	...	15,267	31	22	11	87 26
4	27,196	...	27,196	25½	22	16	...
5	25,980	...	25,980	31	22	21	...
6	19,264	...	19,264	27½	23	11	86 00
7	14,625	...	14,625	25½	22	21	87 00
8	16,725	...	16,725	29	23	11	...
9	5,300	...	5,300	29	22	11	88 75
10	4,550	..	4,550	26	22	11	85 36
11	15,435	4,052	19,487	26½	22	31	...
12	4,992	...	4,992	25½	23	11	90 00
13	2,060	...	2,060	25	23½	21	...

(58—to face page 33.)

production of Japan being 30,000,000 pieces. Osaka with its hand looms supplies only 3,330,000 pieces. It is clear that here is a promising field for the introduction of modern weaving machinery.

The fuel consumed in one year in the Osaka factories is 2,103,000 tons of coal, 14,000 tons of coke, 22,000 tons of charcoal, and 42,000 tons of wood. The chief industries of this city are the manufacture of cotton yarn or cloth, matches, copper, and brass utensils, tallow, paper, glassware, carpets, leatherware, cutlery, umbrellas, sake and other liquors, and furniture.

It is especially in the direction of cotton spinning that Osaka has made rapid strides. At the close of 1896 there were in operation in that city 15 spinning mills, with 280,000 spindles, the total for all Japan being 57 mills, with 670,000 spindles. The Osaka mills employ 4,884 men and 14,655 women, 6,481 of the latter being lodged and boarded in the factories. The following table gives the ages of the mill hands :—

Age.	Number.	
	Male.	Female.
Under 11 years	32	95
Between 11 and 18 years ..	158	964
" 13 16 " ..	387	2,628
" 16 21 " ..	716	4,882
" 21 25 " ..	1,169	2,903
" 25 30 " ..	1,213	1,913
" 30 40 " ..	714	739
" 40 50 " ..	358	351
Above 50 years	137	180

Of the spindles 95 per cent. are rings, and the rest mules; and the tendency is to give up mules altogether. All the Osaka mills, with the exception of one, spin low counts, the average being 18's. The one exception, the Nippon Mill, is spinning yarns of 60 and 80 counts, as well as gassed yarns, but the experiment has not proved a success, and the factory is one of the few that is not paying well. It finds difficulty in procuring skilled labour, and when I visited the mill it was only working half the spindles, and it was evident that the girls were very inexpert at their work. The want of success in this mill has discouraged other companies from attempting the spinning of high counts, and it is unlikely that in the development of this industry any more capital will be invested in machinery for producing fine yarns or gassed yarns.

The following table, showing the result of the working of 13 Osaka factories from which returns were obtainable, is compiled from the Cotton Spinners' Union's returns. It gives the results for the month of December, 1896, and it may be taken as an average month. (See table facing.)

Return of
principal
spinning mills
in Osaka.

Balance sheet
of a successful
spinning mill.

The following half-yearly statement of one of the most prosperous of the Osaka mills may also be of interest. It is condensed from the half-yearly report issued to the shareholders. This mill has 35,000 spindles; it ran for 167 days and nights; during this period it used on an average 41,645 lbs. of raw cotton per day of 24 hours, and yielded 34,533 lbs. of yarn, of an average of 16's count, giving an average of 15 ozs. 11 drams per spindle per 24 hours. The coal consumption was 28 tons a day, and the hands employed averaged 3,098 a day.

SPINNING MILL.—Balance Sheet for Second Half-Year, 1896.

	Currency.		Currency.
	Yen.		Yen.
Paid-up capital ..	750,000	Value of land ..	57,341
Reserve	450,000	„ buildings ..	192,575
Loan	200,000	„ machinery ..	654,953
Various deposits ..	12,432	„ materials ..	35,355
Balance from last half-		„ raw cotton ..	164,217
year	4,175	Dues on new shares ..	56,760
Balance of profit and		Deposits in bank ..	353,817
loss account	202,304	Debts due	29,678
		New buildings	40,867
		Advanced for new	
		machinery	30,600
		Cash in hand	2,748
Total	1,618,911	Total	1,618,911

PROFIT and Loss Account for Second Half-Year, 1896.

	Currency.		Currency.
	Yen.		Yen.
Balance from last half-		Cost of raw cotton ..	1,024,132
year	4,175	„ coal	17,212
Yarn sold	1,331,937	Depreciation	15,612
Waste cotton sold ..	45,863	Freight, packing, fire	
Sundry receipts ..	11,783	insurance, &c. ..	36,555
		Salaries	5,316
		Wages	77,598
		Interest on loan ..	7,232
		Balance	209,501
Total	1,393,758	Total	1,393,758

The profits of 209,501 yen to be appropriated as follows:—

	Currency.
	Yen.
A dividend of 10 per cent. for half-year ..	75,000
Reserve fund	100,000
Bonus to employés	20,200
Balance to next account	14,301
Total	209,501

For the previous three half-years the total amounts set apart were—

	Currency.
	Yen.
For depreciation	42,452
To reserve fund	200,000
Total	242,452

NOTE.—Roughly, 1*l.* sterling = 10 yen.

All these Osaka mills work night and day with double shifts Mill
operatives a fact that should be taken into consideration when the results are compared with those obtained in other countries. The shifts change at 6 a.m. and 6 p.m., and each week the day and night workers change places. The manager of one of the best mills told me that the night work was 30 per cent. less productive than the day work.

In these Osaka factories some of the hands are lodged and fed on the premises, and others live in their own homes. The wages are the same in each case, but from the wages of the boarders is deducted a sum of 6 cents (1½*d.*) for their food. This sum is not now sufficient to cover the cost of the meals, for the price of food has recently gone up considerably, but the proprietors have kept to the old rate. To this extent the resident operatives are gainers, as they get more than their money's worth in the way of food; on the other hand, a woman living at home would probably not indulge in such good food as the mills are supplying. The women, for it is only female operatives who live at the factory, are well lodged and fed, always judging by the Japanese standard. They have three meals a day, consisting of rice, vegetables, occasionally fish, and once a month meat. Those doing night work have an extra meal at midnight. At their meals, contrary to Japanese usage, the women sit at long tables, and not on the floor. There is no limit to the quantity each may take, all being left to refill their bowls as often as they please from the rice tubs placed at intervals along the table, and tea is also at the disposal of all. The lodging is also of the usual Japanese description, that is,

rooms destitute of any furniture, save the padded matting on which the women sit by day and lie by night. From six to eight women share a room, the space allotted to each being 36 square feet. At the different hours that I visited the mills I found but few of the women asleep; some were sewing, others dressing their hair—in Japan always a very elaborate process, even with factory girls—but the greater number were sitting about doing nothing. At the particular mill where I happened to make the enquiry, I was informed that the women were at liberty to go outside during off hours, but few avail themselves of the permission. Outside the factory they would find no friends, and would not know what to do with themselves. Inside the establishment, also, they seem to do nothing to pass the time, but with these patient, placid creatures the time passes away unassisted, and they are just as contented at work as at rest. What to a more highly-strung race would be intolerable monotony is to these Japanese girls a happy enough life.

In many of these mills there is a schoolroom, where for two hours every evening elementary teaching is given to the day workers; there is also an infirmary, and a surgery, where minor accidents are treated, and also a separate building for cases of an infectious nature. There are also large hot-water baths, where the women in batches may daily enjoy the luxury so highly esteemed by Japanese of all classes. The dress of the women, at any rate, during the cold weather, when I saw them, is not at all suitable for factory work. With their tight lower garments confining the limbs, rapid movement is impossible, and the deep-hanging, bag-like sleeves are so much in the way that they have to be drawn back and fastened behind the shoulders.

Management
of spinning
mills.

As to the management of Japanese spinning mills, and their efficiency, my own knowledge does not allow me to form an opinion, but I have had the advantage of visiting some mills in the company of practical cotton spinners, and of discussing the question with Englishmen who are thoroughly competent to speak on the subject. Their criticisms are not flattering to the Japanese management, and, in their opinion, the conditions which have been telling in favour of Japanese spinning mills are tending towards a modification which will deprive the Japanese industry of the advantages it has been enjoying. In the opinion of these experts, the Japanese who have undertaken the spinning of fine yarns have begun too soon, for they have neither the operatives required for fine work, nor the men qualified to act as over-men. The great care that is necessary in the earlier stages of the process is entirely wanting in the Osaka mills, with the result that the out-turn is of inferior quality, and much time is wasted owing to the frequent breaking of the threads. The Japanese managers of the mills are men who have had but little experience. As in so many other departments, they believe that theoretical knowledge can take the place of practical experience, and they discharge their instructors before they are competent to proceed alone. In the same way, the over-men are persons

without experience, quite unable to detect imperfect work; provided the spindles keep running without an actual break-down they are satisfied, and seem to pay but little attention to the quality of the work. In the coarser counts, what an English expert described to me as dirty, slovenly work, is of less importance, but when it comes to finer work, he is of opinion that, from the manager to the operatives, all have to gain much experience before they can succeed in spinning with profit anything finer than 40's. The lack of order and organisation would drive any English manager to despair, and the long hours and cheap labour are of doubtful advantage if they are inseparable from indifferent work.

The hands employed are three or four times as numerous as in English factories. For example, two men, six women, and two children were observed to be in attendance on one pair of mules of 800 spindles each. In England one man and two boys would look after one pair of mules of 1,000 spindles each. This statement is more than borne out by actual figures. In an Osaka mill of 35,000 spindles there are employed 2,000 hands, that is 1,000 hands for each shift, of these, one-half may be considered as children under 15 years. In a well-managed mill of 95,000 spindles in Oldham, I am informed that the complement is 260 operatives, with a few oilers and packers in addition. I cannot say what the monthly pay roll would amount to in the English mill; in the Osaka mill, for the 1,000 hands forming one shift, it is 4,700 silver yen, or, at the present price of silver, 470*l*.

The following comparison has been made by an experienced cotton spinner, an Englishman:—10,000 ring spindles spinning 14*s* counts would require 32 hands at the preparing machines, and 50 girls attending to the spindles. In Japan the numbers would be for two shifts, 120 hands at the machines and 250 girls at the spindles. The output per week of 54 hours in England would be 3 lbs. of yarn per spindle, in Japan per week of 150 hours, 7 to 8 lbs. of yarn. If spinning 20 counts the numbers would be for England, at the machines, 28, and at the spindles 50, while for Japan, 110 at the machines and 250 at the spindles. If spinning 40's counts, for England the hands would be 20 at the machines and 50 at the spindles. For Japan the numbers would be 40 at the machines and 150 at the spindles.

For the same hours the labour in Japan is on an average more than twice what it is in England; the production per spindle is 20 per cent. less; the quality produced from the same cotton is much worse, and the waste at each process is greater by 20 per cent. The wear and tear in Japan is much greater; the expenditure on mill stores and accessories is 25 per cent. more. During the night hours these shortcomings are even more marked, and the quality of the work is worse.

Well or badly managed there is no gainsaying that nearly all the Japanese spinning mills are paying well. The profits for the last year of the 10 best paying mills was at the average rates of 4 yen 94 c. (nearly 10*s*.) per spindle, and the dividends paid

Comparative
efficiency of
Japanese and
English
hands.

Japanese
mills pay well.

during the year averaged 20 per cent. There were a good many mills that paid less; some even less than half that; but this must be due to preventable causes, and in judging of Japan's future prospects as an industrial country it is but right to base the estimate on her best achievement.

Number of
spindles in
Japan.

The high rate of profits earned by the spinning companies continues to attract more and more capital, and at the present time orders are out for 270,000 spindles, which will be erected before the end of the year; so that by the end of 1897, Japan will have 1,000,000 spindles running.

The home
demand for
yarn.

What does the home demand amount to? Japanese are painstaking statisticians, and their enquiries show that the consumption of yarn per head of the population is gradually increasing. In 1896 it had reached 4 lbs. per head, and at that time it was thought that hand spinning had almost died out. It is estimated that 600,000 spindles will satisfy the home demand. Taking the results of the most successful mills as the data of calculation, these 600,000 spindles should give 5 lbs. of yarn for each inhabitant; so probably these 600,000 spindles are a liberal allowance for the needs of the Empire. A foreign market will thus have to be found for the output of 400,000 spindles. Judging by present results these 400,000 spindles should yield 350,000 bales of low counts yarn. This is not far short of the total amount annually imported by China from all countries.

Unlikelihood
of Japan
securing the
China market.

Now that China is beginning to be a producer herself the probability is that the foreign importation will annually decrease, and it would thus seem that Japan will shortly have more spindles than she can profitably employ. That she will retain control of her home market is pretty sure, as when the new tariff comes into force Japanese spun yarn will enjoy a protection of 12½ yen per bale; but as Japan has to import her raw material from India and China, there seems to be no reason why she should be able to undersell the product of the Bombay or Shanghai mills in neutral markets.

In importing Chinese cotton Japan has to pay an export duty in China and again an import duty on the yarn when it is sent back to China, and seeing that Chinese labour is cheaper, and perhaps more efficient than Japanese, the Chinese Government will have to put many obstacles in the way of the new industry in China before the Japanese article can successfully compete with the Shanghai made article in the China market; and if the Shanghai mills are given anything like a fair chance, Osaka and Japan generally may find that the spinning business has been overdone.

How the ratio
between gold
and silver
affects the
yarn trade.

There is only one uncertain factor that affects the competition between Osaka and Bombay in supplying the China demand, that is the question of rupee exchange. As the value of the rupee goes up so does the price of Bombay yarn quoted in Shanghai taels. There has hitherto been no such disturbing element in the transactions between Japan and China, as both were silver-using countries. A rising rupee was all in favour of the Osaka mills.

The Japanese Government has now decided to adopt a gold standard, so that in her commercial relations with China, Japan as much as, or perhaps even more than, India will feel the effect of a rise or fall in silver. It is this consideration that has disposed the Osaka manufacturers to acquiesce in the gold standard proposal; they look upon China as their prospective market, and when they supported the Gold Standard Bill, they were counting on silver going up.

There are already indications that Japan's new industries may bring in their train some of the labour troubles with which the West is but too well acquainted. Large factories are new to Japan; it is only in the matter of cotton spinning and a few other trades that Japan is emerging from the small industry stage; and where workmen are employed in small numbers in different establishments, the disputes arising between themselves and their employers are questions with which the trade as a whole does not concern itself; but in the small industries disputes are of rare occurrence. Employer and employed seem to have an identity of interest, and workmen are found to pass a life-time in the same service. In the large spinning factories labour has so far been able to organise itself that a steady pressure is constantly applied to raise the scale of wages, and in the Osaka mills I was informed that during the last three years wages have risen 50 per cent. The demand for skilled labour is never overtaken by the supply: it is not only that the demand is ever-increasing but the supply of skilled hands is not regularly reinforced by the addition of new comers; for old hands leave almost as fast as new hands join. The factory hands all come from the country, and the large number withdrawn from the accessible localities has had the effect of raising the wages in the farming districts, so that mill proprietors have to offer higher and higher wages to tempt the women to come into the city. Unlike their sisters in the West, Japanese girls prefer a country life, and the mill owners complain that after a year or two their female workers pine for the country and leave them just as they are beginning to be useful. It is said that of those who enter the mills only 25 per cent. stick to it as a means of livelihood; the rest marry or have far more congenial employment. Thus the mills seem to be always engaged in training raw hands, and this must tell strongly against the production of first class work. In order to tempt girls to remain various methods have been devised, such as a system of deferred pay; a bonus after a service of so many years; savings banks in the mills giving a high rate of interest; but the want of hands continues to be a general complaint, and this can but result in a still higher rate of wages.

Labour troubles.

Rise in wages.

Short supply of mill hands.

In the earlier days of the spinning factories hands were eager for employment, and the managers had more applicants than they could engage; but now the insufficient supply of labour has led to agencies being established, who recruit in the country districts, and obtain a premium for each person engaged through them. Recently a serious dispute arose between the Cotton Spinners'

Struggle to
obtain mill
hands.

Union and an independent mill in the struggle to obtain hands. One of the objects with which the Union was formed was to prevent one factory engaging any hands that had left any other factory—it was, in effect, an attempt to keep down wages. When the independent mill started running it was untrammelled by the rules of the Union, and the higher wages it offered as well as the reputation it enjoyed for the liberal and humane treatment of its inmates induced many women to desert their mills, and seek employment in the new establishment. Roughs were hired on both sides, on the one, to protect the women who were trying to better themselves, and on the other, to intercept them on the way, and bring them back by force to their old mills. The contest was carried on for some weeks, and the strangest feature of the affair was that the women themselves were treated as if they had not a word to say in the matter; they were merely the stakes for which the Union and the independent mill were fighting. But the struggle did not end there. All the Union mills announced that they would cease to have any dealings with any persons who transacted any sort of business with the independent mill: not only would they cease to buy any materials, such as raw cotton, oil, coal, &c., from anyone who supplied the boycotted mill, but in their earnestness they went so far as to refuse to sell yarn to any dealer who purchased the yarn of the tabooed mill. The boycotted mill was, however, able to turn the tables on them, for it belonged to the principal banker of Osaka, who at once retaliated by calling in all the advances the bank had made to the Union mills, and ceased to give them any financial facilities. Matters began to assume a critical appearance for the whole trade, and at this junction both sides were glad to submit the matter to arbitration; the arbitrator's award did not settle the question at issue, but found both sides to blame, and thus the difficulty was for a time tided over.

No factory
laws.

Japanese
workman does
not overwork
himself.

Up to the present time the Government has not attempted to legislate in labour questions. The different acts regarding factory management, occupations for female and child labour, which tend to ameliorate the position of English workers, are unknown in this country. Perhaps such legislation was unnecessary so long as the workshop was the home of the operative; and each could work or rest as he liked. Left to himself the Japanese takes his work easily, and long hours do not necessarily mean many hours of uninterrupted toil. Like all Asiatics the Japanese nature rebels against assiduous labour; each short period of sustained effort is relieved by a shorter period of rest for the enjoyment of a whiff of tobacco, a sip of tea, or a conversation with a fellow workman; and his light-hearted disposition, and keen enjoyment of the beauties which his country offers, makes him take a frequent holiday without the intervention of any Japanese Sir John Lubbock. But now that industrial efforts are beginning to be centered in great factories in the midst of crowded cities where the workers can no longer work or rest at will, but must keep pace with the untiring machinery, it has become evident to the

more earnest thinkers of the country that some restriction must be put on the employment of women and very young children. The rulers of the country, eager as they are to see Japan come abreast of Western nations, and even surpass them in industrial achievements, are far-seeing enough to perceive the danger of exhausting the country at one effort, and are concerned lest a temporary success be won at the expense of the staying power of the race. Whatever form the future factory laws may take, it must have the effect of limiting the available supply of cheap labour, and of raising the rate of wages, quite independently of the general tendency in that direction which is such a noticeable feature in Japan's recent social evolution.

What the aspirations of the Japanese cotton spinners are, as regards the China market, may be inferred from the following extract from a Japanese trade journal published in the English language. I quote the article exactly as it appeared. Japanese aspirations regarding yarn trade.

"The import of the Bombay yarn is distributed vastly into different quarters in the interior of China, and the consumption amounts to a considerable quantity, while Japanese yarn is only introduced into Tientsin. Chefoo, Newchwang, Hankow and a few other districts, and the quantity of consumption is still very small compared with Bombay yarn. Moreover, Japanese yarn has not as yet been sold to the largest consuming districts as Chowkei, Gisho and others. No sales of Japanese yarn in the southern China has ever been recorded. Bombay yarn is indeed a strong rival of Japanese yarn in China and it will not be a very easy task to replace Bombay yarn by Japanese yarn. We, however, believe that it would not be an impossible matter to introduce our yarn into the consuming districts in China by making keen competition with Bombay yarn that was long accustomed to be imported there, and that the demand on our yarn might be increased by degree. We are informed by an observer, who has inspected the actual condition of the consuming districts in China, that majority of the consumers in the interior of China simply prefer the fineness of quality and cheapness of prices and nothing else is cared by them. They generally distinguish the quality of goods by the trade marks. Hence, whenever our spinners endeavor to import the best grade yarn at low price there will be no reason why our yarn cannot be introduced into these districts where Bombay yarn is being consumed.

"Some time ago a few samples of the Bombay Cotton yarn that we as very popular in the interior of China was brought home by a merchant and the sample was tested in a certain cotton mill, on its quality, when the result obtained by a careful examination has shewn that these kinds of yarns were very irregular in weight of hanks, and mixed up of varieties of counts in the bundles of 20 count. The twist and strength of the yarn was not uniform. On average a hank was made up of 70 threads, but some were 49 threads while others were found to be composed of 104 threads. Some were much stained by oil and bundles are so irregular that its quality is far inferior to our yarn. Such was the condition of

Bombay yarn that has been long appreciated in the interior of China. Hence we may infer that the Japanese cotton yarn is not inferior to Indian yarn in point of view of its quality. However, it is only a short time since that our yarn has been exported to China and therefore the brands of the Japanese yarn are not widely known by Chinese consumers, and it is sorry to say that the demand on the Japanese yarn is narrowly limited. Not only this, but there was an anxiety that our yarn can not beat Bombay yarn in price at the China market.

"It is, however, an unexpected event that, owing to the poor crop of wheat and cotton in the upper and central parts of India the export of raw cotton and other principal products in India, has considerably reduced in the present year. Moreover, India was obliged to be supplied with a large quantity of wheat from South America. According to this unfortunate event the money market in the interior of China has become much tighter and the uneasiness of money market affected the exchange rate to fall. It is evident that the high rate of exchange between Bombay and Yokohama as 190 rupees that ruled some time ago has fallen to 161 rupees. Also, the rate of exchange between Bombay and Shanghai that ruled 260 rupees has suddenly fallen to 220 rupees for one time and the present rate is maintained at 232 rupees. Hence the Indian yarn to be exported from Bombay into China was raised in price. Recently the well-known Bombay yarn of 20 count quoted 72.25 taels on Shanghai market has risen to 80 taels on account of a fall of exchange rate while the Japanese yarn of the same count—Kanegafuchi mill yarn—is quoted 70.62 taels making almost a difference of 10 taels as compared with the Bombay yarn. Our yarn is now in a good opportunity to beat the Indian yarn in price. As is stated, the quality of the Japanese yarn is already superior to the Indian yarn and the price is also rated far cheaper than the Indian yarn. There will be no other time than now, that the Japanese yarn may take the place of Bombay yarn in the interior of China, that was competed with for many years. The only point that the Japanese cotton spinners should have to exert themselves is to endeavour to manufacture fine grade of yarns in order to achieve the credit of consumers and at the same time to call out their demand by maintaining low prices as possible, and one thing more that the exporters should pay their utmost attention lies in watching carefully at the change of the Exchange rate in Bombay, which will greatly affect the price of the rival goods in the China market. Our cotton spinners and yarn merchants must earnestly endeavor, by this opportunity, to expel our rival yarn from the China market. We hope, they shall not lose sight of this splendid opportunity."

How completely the home-spun article has displaced Bombay yarn in Japan may be seen from the following table :—

Indian yarn driven out of Japan.

Table I.—TABLE showing the extent to which Japanese Yarn is taking the place of Indian and English Yarn.

Year.	Number of Spindles in Japan.	Raw Cotton Imported into Japan.	Bombay Yarn Imported.	English Yarn Imported.	Japanese Output of Yarn.	Japanese Yarn Exported principally to China.
		Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
1890... ..	277,000	34,779,000	18,630,000	23,914,000	42,000,000	...
1891... ..	353,000	66,838,000	6,064,000	17,062,000	63,818,000	...
1892... ..	385,000	104,863,000	11,013,000	21,398,000	82,809,000	...
1893... ..	391,000	125,114,000	6,495,000	19,380,000	88,527,000	420,000
1894... ..	530,000	144,153,000	3,100,000	18,117,000	121,346,000	4,714,000
1895... ..	600,000	191,291,000	1,790,000	17,665,000	153,000,000	4,706,000
1896... ..	670,000	223,824,000	1,200,000	25,485,000	180,000,000	17,300,000

Bombay it is clear has lost an important market, but on the other hand India is supplying Japan with the bulk of the raw cotton she consumes. Last year, of the total amount imported into Japan, India supplied 62 per cent.; China, 26 per cent.; and the United States, 11 per cent.; but there seems at present no prospect of the demand for fine English yarns decreasing. It was 24,000,000 lbs. in 1890, and 25,500,000 lbs. in 1896.

Indian yarn imported in its place.

English yarns hold their own.

In spite of Japan's rapid advance in the spinning industry her demand for English piece-goods is still increasing. In 1885 the import of cotton piece-goods was 52,179,000 yards of which 29,239,000 yards were grey shirtings. In 1896 the total import was 110,000,000 yards, out of which grey shirtings figured for 55,000,000 yards. The steam-driven spindle has displaced the hand spinning wheel, and the hands thus set free have been put on to the hand looms; but they weave not fast enough to supply Japan's increasing demands for cotton textiles. How rapid is this increase may be judged when it is stated that in 1885 62,000,000 lbs. of yarn were woven into cloth; in 1896 the amount was over 200,000,000 lbs. A certain portion of this cloth was exported to China and other parts, but not in nearly sufficient quantities to account for the growing output. The increased consumption is explained by the changing habits of the Japanese in whom is growing a fondness for luxury and display which the old-fashioned conservatives denounce as a change for the worse. They make comparisons between the days of their youth, when a homespun and woven garment lasted a lifetime, and the present time when people do not care to buy any material that will last more than a year.

Import of English piece-goods increasing.

That weaving by steam machinery has progressed more slowly than spinning is not surprising. The difference of efficiency between cotton spinning by hand and spinning by machinery is immense. In the old-fashioned hand spinning one person had to attend to one spindle, whereas with spinning machinery one person can manage a frame of 200 spindles. In weaving the

Weaving in power looms makes slow progress.

advantage of modern machinery is not so conspicuous. The Japanese now use a loom called "battan," it is a native loom with foreign improvements, and the cost is only 5 yen, and its efficiency is about one half of a power loom, which with cost of building and accessories would amount to some 500 yen. Each "battan" loom requires one person, whereas a woman could attend to four or five power looms. This means that with modern machinery one person can turn out ten times as much cloth as by the native process; but the difference in the amount of capital to be invested brings the financial results much nearer than in the case of spinning, where modern machinery is 200 times as effective as the spinning wheel.

With this report are forwarded some samples of materials to illustrate the weaving industry of the country. A few are samples of cloth made in the power looms at Osaka, others are the materials woven in hand looms out of the finer yarns imported from England; and the rest show to what use are put the yarns spun in the numerous Osaka factories. A list of the samples is given at the end of the report.

Woollen
industry.

Japanese
beginning to
use woollen
clothing.

Japan is only now beginning to be a wool-wearing nation. Sheep will not live in this country, and in former times, before Japan had consented to have commercial relations with the outer world, her people had acquired the habit of keeping warm as best they might with cotton and silk materials. This custom is now slowly changing, and a fair proportion of the middle and upper classes have a certain part of their clothing made of wool; the annual importation of mousseline de laine now amounting to 37,000,000 yards. Woollen underclothes are becoming common, the woollen singlet is in evidence at the wrists and throats of men who would claim to be well and neatly dressed. Many men wear cloth clothes of European cut, and the women and children in the cold weather make large use of knitted woollen shawls and head covering; woollen blankets and rugs abound, and are much used by the lower classes Red Indian fashion. In every street these may be seen for sale, some shops dealing in such articles exclusively. It is only recently, however, that the Japanese have attempted to spin and weave wool for themselves.

Woollen
factories in
Japan.

At present there are but four woollen factories in the country, three in Tokio and one at Osaka, and of the former one is a Government establishment solely occupied in weaving cloth for the army and navy. The other two factories at Tokio turn out blankets, cloth and flannel. Of the working of one of these mills the following particulars were obtained. The materials used during 24 hours (22 working hours) are 2,700 lbs. of wool, of which 2,000 lbs. are North China wool and 700 lbs. Australian. The hands employed are 129 men and 182 women: and the wages range from 1 dol. to 25 c. for the men, and from 25 to 10 c. for the women. The monthly pay roll amounts to 3,000 dol.

The work is distributed over the following departments:—

Department.	Number.	
	Men.	Women.
Mixing	8	20
Washing, scouring, and drying	6	6
Carding	9	56
Spinning	7	24
Dyeing	18	..
Reeling	1	10
Drawing-in	10	..
Weaving flannel.. .. .	6	10
" cloth	6	20
" blankets	14	26
Fulling	12	..
Finishing.. .. .	7	10

The daily output of this factory is 360 yards of flannel, 210 yards of cloth, and 480 rugs or blankets.

The mill at Osaka is not yet in full working order. It has recently had to change its position as in the first locality the water was found to be brackish. When in full working order its capacity will be equal to working up 1,500 lbs. of wool a day. It has 2,400 spindles and 40 looms, and it employs 130 men and 170 women. It turns out flannel and rugs. Up to the present the yarn has been spun by steam machinery, and worked up into cloth in hand looms. This work is all done by women who earn from 15 to 20 c. a day, and in the simple wooden hand looms they can weave five yards of flannel a day. The flannel produced at this mill is difficult to distinguish from the German coloured flannel of which Japan imports a large quantity. The native article is chiefly used for underclothing, and finds a market in the country; a small quantity also finds its way to Hong-Kong and the Straits.

Samples of the products of the Tokio and Osaka woollen mills are sent separately, and a list of the samples is appended to this report.

In the year 1896 Japan imported 3,650,000 lbs. of wool. Assuming that the whole quantity was worked up in the proportions indicated by the returns of the Tokio woollen mill, the following table shows the comparative amounts of home-made and of imported woollen textiles for the year 1896:—

Textiles.		Quantity.	
Flannel—			
Home-made	Yards	..	487,000
Imported	"	..	5,669,000
Cloth—			
Home-made	"	..	284,000
Imported	"	..	2,703,000
Blankets and rugs—			
Home-made	Pieces	..	649,000
Imported	"	..	2,844,000

Japan still
dependent on
European
woollen goods.

This shews that Japan is still very far from supplying the home demand for these three kinds of woollen goods, limited as at present this demand is. Her mills do not manufacture 12 per cent. of her requirements in this direction. What her wants may become if the taste for woollen clothes and coverings continues to grow may be imagined when it is realised that at present the annual allowance per head of the population is 5 inches of flannel and $2\frac{1}{2}$ inches of cloth: and that only one person in 14 buys a new blanket.

Match
factories.

All hand
labour.

It is perhaps in a match factory that the advantages of cheap labour can best be seen. Osaka and Kobe are the centres of this industry, which employs some 12,000 persons. Nearly the whole process is done by hand, and the cost of making matches chiefly resolves itself into a question of wages. In one large factory at Osaka, which I visited, the only machinery employed was a dozen machines used for placing the splints into the frames before they undergo the chemical treatment. But even these machines are worked by hand, and they are being tried as an experiment. They are of German make, and very inexpensive looking machines. I was surprised to learn from the manager that they cost 200 yen laid down in Osaka. This factory employs 1,500 hands, principally young girls. It is only in such parts of the process as require physical strength that men are employed, or where the duties to be performed are essentially men's work, such as soldering tin cases, wheeling trucks, stoking furnaces, &c. The manager is a young Japanese who learnt his trade at the Government Technical School in Tokio, an establishment which I had visited when in the capital. My visit took place during a holiday, so that I saw it under unfavourable circumstances. The subjects taught are weaving, carpentering, metallurgy, dyeing, porcelain-making, and chemistry. In the course of my investigations I have more than once come across young men in remunerative positions who had passed through this establishment.

In this factory the splints are imported ready cut from the northern island of the Empire. Before being dipped in the chemical preparation they are placed in the frames by women, who become marvellously expert at their work. The way it is done is as follows:—The woman takes a number of splints between her fingers, and practice soon teaches her how many are required. With a rapid pass of the fingers she spreads the splints along a thin piece of wood an inch wide and a foot long, into which have been scored 50 shallow grooves at regular intervals. By deft manipulation one pass of the fingers leaves about 45 grooves duly filled, and with lightning rapidity the five empty grooves receive their little stick; then another strip of wood is superposed, and keeps the lower one in position. The process is repeated 55 times and then the frame is full. Thus 2,750 splints go to each frame. A very practised hand will fill 50 frames in a day of 10 hours, and thus earn $17\frac{1}{2}$ c., but in this establishment there were but few who could fill more than 40 frames a day. As in every other

department where the nature of the occupation allows it, this work is paid by the piece at the rate of $3\frac{1}{2}$ c. for ten frames. The women work on the floor each in her little pen-like compartment, railed off by bamboo poles. The Japanese woman's attitude at work, in which she will remain for hours, is to kneel, and sit back on her feet, which are turned toes inwards under her. Each worker has her box with a supply of splints, and a number of frames at hand, and an overseer comes round periodically to count and remove the full frames. In one room were working some 100 young girls and women, some of them mothers, with their babes strapped on their backs, or crawling round clinging to the mother and innocently impeding her in her work. Here was no idleness and not much conversation. The young people preferred singing each her own independent air; and the hubbub was confusing but not displeasing. The beginners who are not necessarily the youngest, for a mature matron clumsily filling her few cases a day might be seen side by side with a young girl whose rapid fingers with a magic pass seemed to place the little sticks with the precision of a machine, earn but a small number of cents per day, which even in this country of cheap living can scarcely suffice for food; but all seemed bright, happy, and contented, for the Japanese woman is blessed with a cheerful disposition.

It seems to be a close contest between the German machines and the women's nimble fingers. The manager went into some calculation with me to prove that the machine work was not much cheaper. The frames filled by the machines only hold 2,250 splints, to the 2,750 of the hand-filled frames. Each machine requires two men, one to turn the handle, the other to attend to the frames. Two good men will fill 600 frames a day, and thus earn 50 c. each. If we put their 100 c. against the 170 c. which would be paid to the women for filling the same number of frames there is a saving of 70 c. a day in favour of the machine; but against this according to the manager has to be set a considerable sum for interest, repairs, and loss of time during frequent breakdowns. It seems strange that human fingers should be able to place short sticks each in its own niche as cheaply as a machine that disposes of 2,250 splints at one operation; but I take the Japanese manager's word for it that such is the case.

After the splints in the frames have received the chemical treatment and passed through the drying-rooms—all this being the work of men—the matches again come into the hands of women, and in the box-filling and box-labelling rooms the visitor is again amazed at the celerity of human fingers. In the box-filling room young girls and women are again sitting on the floor in rows, and the small babies re-appear either on the mother's back or at her side. A rapid worker will fill 400 dozen boxes per day; with unerring judgment the delicate fingers pick up the exact quantity of matches, and with a shake or two lay them evenly in the box; then, instead of replacing the original cover on to the full case, the woman pushes the latter into a new cover,

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and in doing so pushes out an empty case, which in its turn as soon as filled, displaces another tenant. This work is rewarded at the rate of $5\frac{1}{2}$ c. per 100 dozen; and a very quick worker may earn 22 c.

In the box-labelling room it is again women's work. Each woman has in front of her a board on which are laid a pot of paste and a small pile of labels face downwards. At her side are the unadorned match boxes. A small quantity of paste is spread on the board and then almost more rapidly than the eye can follow the flat brush is dabbed on to the paste, swept across the topmost label to which it adheres, the label is slapped on to the box, and a rub of the finger secures it in its place. The best women can label 25,000 boxes a day, and while I was noticing one girl my watch told me that she was doing more than one a second; but she was the show worker of the room and on her mettle; and such rapidity could not be kept up for long. This work is paid 1 c. per 1,000 boxes. It was in this department that the difference between the novice and the expert was most apparent. The pride of the room whom I had been watching had been at it for five years; not far from her was a middle-aged woman whom some misfortune had compelled to start as a beginner at label pasting. Each operation required her closest attention, and very reluctantly did the labels settle in their proper places. This poor woman was earning a little more than a cent a day, and she did not seem as if she could ever improve much on that. She might have been excused for looking depressed; but like all the others she seemed cheerful and contented.

As the trade is now bad this factory was only turning out 80 cases a day, each case containing 50 gross of boxes. Two kinds of matches are made, the "safety," which lights only on the box, and the ordinary match, which lights anywhere. The latter cost 50 per cent. more than the safety matches and India is the principal market for these. Perhaps they go there for the same reason that they find their way into parts of China where the people are too poor to buy a whole box at a time, and must therefore have a match which will light not "only on the box," but anywhere else. The "safety" kind supply the home demand and the China market; and are now pushing their way very far afield.

After spending some time in watching so many thousand busy fingers engaged in work which seemed to be taken as cheerfully as play, it was with regret that I learned that the factory is not paying. Some years ago in Japan match making was very profitable, and the progress the industry has made is remarkable. At one time Japan imported matches, now she not only supplies the home demand, but she has a very large surplus for exportation.

In 1884 the export was only 9,000 gross of boxes, during the last five years the ascending scale has been as follows:—

Increasing
export of
matches.

Year.						Million Gross.
1892	..	..	..	..	..	9
1893	..	..	..	..	..	13
1894	..	..	..	..	..	14
1895	..	..	..	..	..	17
1896	..	..	..	..	..	18

But of late there has been an over-production and the Match-makers' Union have agreed to limit their output in order to keep up prices to a profitable level. The price of Japanese matches has been gradually going up. The average price per case of 7,200 boxes during the last five years has crept up from $12\frac{1}{2}$ to $16\frac{1}{2}$ yen, which is the present quotation. This must in part be put down to the increased rate of wages. The manager informed me that in this trade wages, since the war, had increased 30 per cent. Even at the present price an English 1*d.* would buy 17 boxes of 70 matches in each.

The establishment I have been describing is a joint stock company, and this is its statement for the last half-year:—

						Amount.	Total.
						Yen.	Yen.
Capital	..	..	..	..	..	50,000	
Reserve	..	..	..	..	..	4,500	
Loan	..	..	..	..	..	97,000	
							151,500
Profit and loss account—							
By sale of matches	..	..	..	..	..	..	176,849
To purchase of materials	..	..	..	..	..	135,028	
wages	..	..	..	..	..	23,387	
salaries	..	..	..	..	..	1,144	
interest on loan	..	..	..	..	..	6,214	
repairs	..	..	..	..	..	1,321	
depreciation	..	..	..	..	..	1,686	
other expenses (all detailed)	..	..	..	..	..	7,807	
							176,587
Balance	..	..	..	..	..	..	262
							176,849

In this connection it is interesting to read of the effect which Japanese competition has had on the Norwegian match industry. Here is an extract from a Consular report on the trade of Christiania:—

“Japanese competition spells bankruptcy. About 50,000 cases of 50 gross of matches have been exported, nine-tenths of which, consisting of phosphoric matches, went to the British Indies. Japanese competition, which was formerly confined exclusively to safety matches, has now become equally serious in connection with the phosphoric article. Japan now exports large quantities to

Effect of
Japanese
competition
on European
industry.

the whole of India. Of the five match factories working for the export trade, one has been compelled to amalgamate its two establishments, another has made very bad business, a third no longer makes safety matches, the fourth has lowered its output, and the fifth has gone bankrupt."

Carpet
making.

Another industry which employs a large number of hands, and chiefly of very tender years, is carpet making. In Japan the carpet is a modern luxury. Before the days of foreign trade cotton carpets with a long pile an inch in length, in imitation of the Chinese article, were made in small quantities; and when, after the signing of the foreign treaties, European goods began to be introduced foreign carpets greatly took the Japanese fancy. The carpet makers of Sakai, the chief seat of the industry, situated about six miles from Osaka, took hints from the foreign articles, and in course of time improved so much upon their earlier processes that already in 1878 cotton and jute carpets began to be exported to Europe and America. The trade has now grown to large proportions, and it affords one instance of the Japanese being able to beat those from whom they learnt. The dimensions of the trade is indicated in the following table, the United States being the principal importer:—

EXPORTS of Carpets.

Year.					Number.	Value.
						Yen.
1890	..	..	..	..	27,593	51,048
1896	..	..	..	..	661,732	1,152,177

All hand
labour.

Carpet making affords a striking example of the successful competition between cheap labour and machinery. At Sakai there is no large factory, the handlooms are distributed all over the town, and the carpet dealers supply the material and pay the workers by the piece. In each house there may be three or four looms ranging from 3 to 24 feet wide. To each loom there are from two to four children with a grown up person superintending the work. With incredible speed the children, some of them as young as seven, pass the yarn in and out of the warp, and snip off the right length with a pair of spring clippers. They are all kneeling at their work on a plank laid at the foot of the loom, and they slide backwards and forwards along their allotted share of the design. As their little fingers pass the yarn in and out of the cotton threads these small children sing a sort of nursery rhyme which helps them to remember the pattern, and at intervals the woman in charge leads off a new verse which the children at once take up and simultaneously effect the change suggested by the new music and words. They work, or at least are at their work, for 12 hours a day these little things of seven or eight, sitting on their heels before the slowly developing pattern all the time, and

their wages come to about 1*d.* a day, but the amount, whatever it is, does not trouble them, for it is not theirs to spend. Japanese child life throughout the land seems happy, but I make an exception in the case of these little carpet weavers passing all their waking hours amid such unattractive surroundings. The workshop is a dismal sunless spot, and from daylight to dark these busy little workers have nothing more cheerful to gaze upon than the ever recurring design they are laboriously developing.

The average price of a medium quality rug made of cotton or hemp is 12 c. a square foot, but the price, of course, depends on the number of threads in warp and woof; about 250 threads to a yard is the average quality.

Woollen carpets are also being manufactured, but in price they seem far to exceed similar carpets made in North China, without a corresponding improvement in quality. Here it is 60 c. a square foot against 20 c. for a carpet of the same appearance made at Tientsin in North China, but in Sakai. Australian wool is used, which, of course, is much dearer than the Mongolian wool. Small silk carpets are also being made, but the demand for these is limited; they cost as much as 10 yen a square foot. For a carpet of any given dimension 90 times the labour is required as in the case of a hempen carpet. Three hands will make an ordinary hemp or wool rug, 3 by 6 feet, in one day, and it would take the same workers three months to make the silk carpet.

The number of carpet weaving establishments in this district is nearly 2,000 producing 3,000,000 square yards of carpets in the year, and in them are employed 5,000 male and 13,000 female workers.

Official Aids to Private Enterprise.

Confident as the Japanese would sometimes seem to be that the nation is on the high road to industrial success, and much as the prospect gains colour from the alarm they discern in the minds of the manufacturers of the Western world at the appearance of an unexpected and dangerous rival in the field of commerce, they yet do not seem to be equal to the task of engaging in the struggle for commercial supremacy without a good deal of paternal encouragement. Quite apart from the ordinary methods usually adopted to foster industries, such as the abolition of import duties on raw material, and also of export duties on their principal manufactures; the adoption of a protective tariff; the establishment of industrial exhibitions at home and abroad, &c., all of which the Japanese Government has carried into effect with praiseworthy thoroughness, there is on the part of all who are taking a share in pushing Japan's commerce further afield, a disposition to look to the State for special assistance; and similarly on the part of the Government there too is to be observed a tendency to take in hand and nurse every new enterprise, as well as any old one that does not seem to succeed very well on its own merits. This may be due to the education received by Japan's

Japanese wool
carpets dearer
than Chinese.

Official
bolstering of
private
enterprise.

Narrow views
of Japanese
statesmen.

rising men who at the Imperial University and various Government institutions acquire a fund of theoretical knowledge, of which they are impatient to give the benefit to their country, or the explanation may lie in the patriotic ambition to see Japan take a prominent position in the world of commerce as well as in the political world; in any case, the result is an amount of fostering encouragement which may almost be described as coddling. Yet in their haste to develop the commerce of Japan her statesmen frequently appear to lose sight of the main question, and to confine their attention to the personal element. The expansion of international trade is the theme of their discourses, but when their teaching is translated into action it is evident that it is not the volume of commerce alone that is in their thoughts, but also the share of it which is conducted by Japanese agency. There appears to the Japanese official mind a great difference between the sale of 1,000 bales of silk by a Japanese merchant to a foreigner at Yokohama and the sale of the same silk by a Japanese to a firm in Lyons. And in the import trade the same discrimination is allowed to disturb their composure. Whether the Japanese purchaser obtains possession of his merchandise in London and has it transported in his name to Japan, or whether he gives his order to a British merchant in Japan, in whose name the goods are imported into the country, would seem in effect much the same thing. There might possibly be ground for such distinction if the foreign merchant either collected and prepared Japan's produce before exportation, or if he undertook the distribution of his imports, but as trade is now carried on, the only difference in the form of the two transactions seems to be entirely in favour of the Japanese, for as a seller of his country's produce he obtains his price and is relieved of responsibility at the earliest stage of the proceedings; and as a purchaser of foreign commodities he neither has to make payment nor take any risk until the last moment when the merchandise reaches its destination.

Government
encourage-
ment of direct
export of silk

As a sample of official meddling in trade affairs the following may be cited. In the last session of the Diet a Bill was passed ostensibly designed to improve the quality of raw silk intended for exportation. Under it, provision is made for giving bounties to Japanese subjects who export raw silk of a certain standard of excellence. Silk sold in Japan to be exported by foreigners will not benefit under the Act; the article must be exported directly by Japanese subjects. At present, no silk is accepted by foreign firms abroad unless it has undergone inspection at the hands of a foreign expert either in Japan or abroad. A few Japanese merchants export to Europe and America on their own account, but before buying the silk the New York or Lyons manufacturers require it to undergo foreign inspection.

Jealousy of
foreign
supervision.

It is understood that the Bill aims at abolishing this system of foreign inspection, which is deemed to be a reflection on the trustworthiness of Japanese silk dealers. It is hoped by those responsible for the Bill that as the bounty will only be given to

silk of a certain standard, the certificate of the Government inspectors will be accepted as proof conclusive of the quality, and that the reputation of Japanese silk will by degrees be re-established. The effect of the Act will probably be to make Japanese merchants send their silk direct to foreign countries in preference to selling it to foreign merchants in Yokohama, for the bounty will more than counterbalance the risk they will take upon themselves, but on arrival at Lyons or New York they will still have to submit to the inspection of the foreign expert, whose intervention it is the object of the Act to do away with. If legislation of this sort is ever wise the Government might achieve its object of raising the status of Japanese silk growers and inspectors in foreign markets by giving the bounty to all exporters alike, but to adopt a measure calculated to hasten the exodus of the foreign silk merchant from Japan is to destroy the very means by which Japan's prosperous silk trade has been developed to its present dimensions. In submitting the Bill to the Diet the Minister responsible for it explained that until recently Japanese silk had ranked before Chinese in foreign markets, but about two years ago it lost that position, and the Chinese article is now valued more highly. The Japanese Minister ascribed the improvement of Chinese silk to the establishment of modern filatures partly under foreign management in Shanghai and other places in China, and another speaker in supporting the Bill would not admit that in fair competition Japan had anything to fear from China, but "at the back of China," he stated, "were great Western nations whose aim was to improve Chinese silk to such a degree that export of this staple from Japan would find no place in the markets of the occident." It is well that Japanese statesmen should admit the fact that Western capital and business aptitude, where these are allowed the opportunity, can do so much for a country, for the tendency in Japan is to exclude the foreigner from all participation in the development of the resources of the country. It is true that Japanese statesmen frequently express a hope that foreign capital will flow into the country. One of the arguments used by the Finance Minister in introducing the Gold Standard Bill was that it would give Japan access to foreign capital which hitherto had been shy of coming to a silver using country; but it is only in a limited sense that the Japanese wish to see foreign capital come in. Money is very scarce, and interest high, and in the shape of loans Japanese are quite willing to see foreign money pour in, but not in any other way. Foreigners may not buy shares in Japanese railways, shipping, or industrial companies, may not lease land for industrial purposes, and are kept as closely as possible to the one business of buying and selling. This strange illusion that any money gained by a foreigner in the country is so much lost to Japan shows itself in every action of the Government in dealing with questions affecting foreigners. The spirit of exclusivism which a few decades ago kept Japan isolated from the rest of the world, seems to have assumed another phase. Japan now cannot have enough inter-

Japanese silk
deteriorating.

Japanese
jealousy of
foreign
participation
in develop-
ment of the
country.

course with other countries, but if she has her own way the intercourse would be all one-sided. It would be Japanese merchants who carried Japanese products to far away countries, and brought back whatever foreign countries had to give in exchange. The Japanese flag alone would fly on the ships which enter or leave her ports, and none but Japanese would have a hand in any scheme for enriching the country. The successful development of industries in China with the assistance of foreign capital, skill and supervision, especially when the results are injurious to similar industries in Japan will probably convert the Japanese to the opinion that the foreigner and his capital can have a more potent effect in enriching the country than all the artificial stimulus that paternal legislation can administer.

Like silk, tea has begun to feel the effect of competition, and to lose ground, and as a matter of course the State has been appealed to for pecuniary assistance. Even the match trade, that with phenomenal success has within the last few years driven all competitors out of the Eastern markets, is temporarily depressed owing to over-production and fraudulent practices, and consequently Government assistance is being invoked to devise means of improving the trade in China and Corea.

Reference has been made in another part of this report to the encouragement of shipbuilding and navigation; but this is not deemed sufficient, and any project for opening a line of steamers to foreign ports is accompanied by a suggestion of special assistance from the Government. Even deep sea fishing which should be a very prosperous occupation, for the home consumption and the exportation to China offers an immense market, cannot get along without artificial aid, and a law has lately been passed granting a subsidy to fishing vessels and fishermen.

Official
supervision of
chief staples
of export.

But these legislative enactments are trivial compared to one which has recently received the approval of the Diet. This law, whatever its intent may be, will have the effect of placing under Government control and supervision the production of all articles intended for exportation to foreign countries. It is intended that the law shall apply to all articles of which the exportation exceeds 100,000 dol., and this will take in about 60 staples of export. Not the wishes of the consumer in foreign countries will in future decide upon the quality that is best suited for the requirements of the foreign market, but it will be the Japanese Government inspector who will settle the question.

Trade guilds
and trusts.

Without Government encouragement the system of trade guilds, unions, and business associations already flourishes vigorously in Japan. The first combination of the kind started into life some years ago under the guidance of an energetic organiser, whose name is now synonymous with trades unionism, and so complete has the organisation become that all the principal commercial and industrial interests of the country are affected by it. The prime object of organising these business associations is to safeguard the interests of the various trades represented by preventing ruinous competition and by improving the quality of

manufactures, but these guilds so far from applying their combined strength to the useful purpose of their creation frequently use it as a means of bending the foreign merchant to their will. The functions of these associations have extended until they have assumed the character of "trusts," and in their hands foreign importers and exporters are likely to come off badly, for the latter lie entirely at their mercy. As the foreigner's operations are restricted to the treaty ports, these well organised associations stand between them and the native producers and consumers, and foreigners of divers nationalities far from being able to effect similar combinations in self-defence, play into the hands of these "trusts" by their keen competition amongst themselves. The influence of these combined associations has now made itself felt in the Diet, and their proceedings are now to have the sanction of the law. The Government has introduced a Bill which will deprive individuals of the right of standing out and carrying on their business, independently of the behests of the trade unions. Under the provisions of the Act which has now passed in the Diet, persons engaged in producing, manufacturing, or selling the principal staples of export may form a corporation when four-fifths of those so engaged desire it, and once the corporation is established, every person engaged in the same kinds of business must become a member of the corporation and submit to its ruling; and even when there is no desire on the part of trades to form themselves into a union, power is reserved to the Minister of Agriculture and Commerce to require them to do so, and that official may even frame regulations for the conduct of their business and the inspection of their wares. The ostensible object of this paternal legislation, and probably the genuine intention of it, is to prevent fraudulent practices in manufactures. Some of Japan's most important industries have suffered from this cause, and the dishonest methods of a few unscrupulous men have brought discredit on the whole trade. Straw braid, matches, carpets, porcelain and other kinds of merchandise at different times have all suffered in foreign markets because makers failed to keep up the standard of quality. The Minister of Agriculture and Commerce did not hesitate to say in the Diet that commerce had lately been crippled by imperfection in the method of manufacturing or producing all articles of export, and the trade credit of Japan had virtually fallen to the ground. The intention of the new Act is that official inspectors shall be appointed to examine all articles intended for exportation, and they will be empowered to reject those that do not come up to a certain standard. It is evident that such legislation opens the door to great abuses, and that even with the best intentions serious interference with the law of supply and demand may result, and the injury it may work will not necessarily be confined to Japanese producers. A foreign exporter may enter into large contracts for the production of a particular article, and the execution of the order may give him complete satisfaction, yet a hypercritical Government inspector may be more exacting, and may step in to prevent delivery being

made. Later, or when under the new treaties, foreigners obtain access to the interior and have permission to engage in all kinds of manufacturing industries, the prospect of being compelled to join a corporation and to be trammelled by regulations made by jealous native competitors whose united stake may be less than the one foreigner's, will certainly be a discouragement to foreign enterprise, and this adds one more to the difficulties which foreigners foresee they will have to encounter as soon as they attempt to put to a practical test the advantages which the new treaties are intended to confer on them, but what is alluringly designated as throwing open the country to foreign enterprise.

The hot-house
method of
industrial
development.

It is plain that the Japanese Government is encouraged by the present rate of progress to believe that Japan will, before long, fill an important role on the world's commercial stage, and that as she begins to invade the markets which Western nations have monopolised for so many years, so will these latter redouble their efforts to retain possession of the ground they have held so long. Japan is now beginning to produce more than she can consume, and what she will soon need, so think her rulers, is a fair opportunity of disposing of her superabundance. Since the war a new condition of things has arisen, for from being a field for the exploitation of countries more endowed with commercial knowledge, Japan is about to enter the arena, eager to take a hand in the struggle to secure the profits of trade in all directions; and the problems which are presenting themselves under the new conditions are such as cannot be left to be solved by the people alone; the Government itself must come forward with its co-operation and assistance. To this end there has recently been established a "Higher Chamber of Agriculture, Industries, and Commerce." There already exists a Department of Agriculture, Industries, and Commerce that occupies itself with matters within the Empire, and the Higher Chamber is intended to investigate wider questions of national economics as affected by Japan's foreign relations. The functions of the new department, as explained by one of its members, are to assist in bringing about such changes in agriculture, industries, and commerce as will place Japan in a position to hold her own in the markets of the world. In all three pursuits, he states, much has yet to be done. First, agriculture, from the point of view of foreign trade, must aim at quality rather than quantity. Japan is surrounded by several countries of immense territory, noted as the great geponic lands. Japan cannot hope to compete with these in the quantity of her agricultural productions, but she may strive for superiority of quality. The examples of Egypt with its cotton, Italy with its rice, France with its silk, and England with its wool and sheep, are cited as cases of countries whose limited area does not allow them to compete with vast countries in the quantity of agricultural productions: but which in the quality of their respective staples distance all other competitors. Secondly, continues this speaker, as to the industries: Japan possesses all the advantages necessary to make her a great manufacturing

country. Her people possess exceptional skill, and labour is relatively cheap. Coal is abundant, and the raw material is easily obtainable either at home or in the neighbouring countries. Japan's future success lies in supplying the more civilised countries with such articles as Japan excels in, and the less civilised countries with the commodities that are now supplied by foreign countries, but which the adoption by Japan of foreign methods and machinery will now enable her to produce more cheaply. Thirdly, as to commerce: an outlet for the products of the two methods of agriculture and manufacture must be found, foreign trade must be extended, and the Japanese merchant must be stimulated. He must be incited to seek his own markets without waiting for the foreign buyer to come to him; and to this end the Government should give encouragement to navigation and to opening up new lines of communication; it should obtain information regarding the commerce, industry, and economic conditions of other countries, and assist in establishing banks in foreign countries, so that Japanese merchants may have the same financial facilities as traders of other countries.

Mercantile Marine.

The development of the mercantile marine since the war is one of the many ways in which Japan is striving to take a prominent position in the world. Before the war the tonnage of her steamers amounted to 160,000 tons, and she now has close on 400,000 tons of steam shipping. In order to meet the requirements of the naval and military authorities for the transport of troops and stores, the principal steamship company on behalf of the Government had to procure many additional vessels, and the cessation of hostilities found the Japanese in possession of more ships than they could employ, many of them, it is true, old in hull and engine, and quite unsuitable for modern carrying trade. A good many large steamers now on the list of shipping will probably never be used again, and Japan's mercantile marine is more imposing on paper than in reality. In order to find employment for this redundancy of tonnage, it became necessary to open up new trade routes to foreign countries. In this direction steamship owners received every encouragement that the Government could give in the way of subsidies, mail contracts, and bounties. The principal steamship company in Japan, the Nippon Yusen Kaisha, immediately after the war, decided to largely increase its capital, by raising it from 8,000,000 yen to 22,000,000 yen, and to run a regular line of steamers to Europe, America, India, and Australia; and to this end it gave orders for 18 new steamers, 15 of which are to be of 5,000 tons or over, and the remaining three of 3,000 tons each. When these are delivered the company will be in possession of a fleet of 80 vessels, 50 of which will be over 2,000 tons.

Amount of
Japanese
steam
tonnage.

Voyages to
foreign
countries.

Assistance
from
Government.

This large company, in which some Japanese in very high places are interested, receives generous encouragement from the

State. Apart from what it receives under the provisions of the Navigation Act and Shipbuilding Act, it has contracts for carrying mails in various directions, and it is confidently expected that the next Diet will grant it a sum of 3,500,000 yen annually, in order to enable it to keep up its services to Europe and America. In supporting a private steamship company to this extent, the Government probably has in view the necessity of having in reserve an adequate fleet of transports for use in case of war, and this large expenditure cannot, therefore, entirely be put down to the encouragement of commerce. That the company will require all the assistance that it can obtain from the Government is clear, for, as a business operation, the lines recently opened are not likely to be successful. So far, each trip to Europe and America has shown a heavy loss, the estimated deficit on each voyage to Europe being 83,000 yen, and to California 48,000 yen.

Shipping
business not
well managed.

Neither as carriers of passengers nor of cargo does this company yet enjoy the confidence of foreigners. The Japanese captain, who is fast being substituted for the foreign captain, has not yet earned a reputation as a trustworthy navigator; discipline is not strict on board Japanese ships, and claims for loss or damage of cargo are more frequent than in the case of foreign steamers. The way in which the Japanese navigated their fleet in dangerous waters during the late war proves that the country possesses skilful navigators, but the European passenger for a long time will feel safer under the care of a foreign captain; and the shipper, other things being equal, will avoid having dealings with people so unbusinesslike on a European standard as are found in a Japanese shipping office. One British importing firm, finding it impossible to obtain redress for damage caused to machinery through careless handling in the course of landing, has instructed its London agents not to ship by Japanese steamers again; and another British firm, which was shipping rice from Japan to a foreign port, found that the Japanese steamer company was forestalling any future claims for damaged cargo by writing on the bill of lading "all in bad order and condition." The cargo was not only shipped in good order and condition, but on the shipping order there was written a notice stating that only packages in good condition were to be received on board.

Besides the large company just mentioned, there is another, the Osaka Shosen Kaisha, that also shows signs of increasing its operations. Hitherto this company has confined itself to the coast trade, and, although unlike its favoured semi-official rival, it was unassisted by State aid, it has grown and flourished, and it is now about to venture further afield. It has ordered seven new steamers, and it intends to run them to Formosa, Hong-Kong, China, Corea, and Vladivostock.

Dimensions
of mercantile
marine.

These are the two principal steamship companies, but there are others that are planning to run to America and European ports; but their schemes are not yet matured, and the scope of their proposed operations, undergoes frequent modification. The present strength of Japan's mercantile marine is as follows:—

					Number of Vessels.
Between 200 and 500 tons	..	..	..	..	80
" 500 1,000	"	"	"	"	47
" 1,000 1,500	"	"	"	"	30
" 1,500 2,000	"	"	"	"	28
" 2,000 2,500	"	"	"	"	26
" 2,500 3,000	"	"	"	"	21
" 3,000 4,000	"	"	"	"	26
Over 4,000 tons	..	..	..	..	15

By far the greater part of these are engaged in the coast trade, for, unlike China, the whole coast is freely open to steam navigation, and coast trade duties on the merchandise carried are unknown. As under the new treaties, the coast trade is reserved for the Japanese flag, this will not be a field where the Japanese need fear foreign competition, but whatever port in the future may be open to Japanese steamers trading to foreign ports will also be open to the British flag. ✓

Reference has been made to the absence of discipline amongst Japanese crews. In the Eastern seas foreign shipmasters find Japanese sailors most troublesome to deal with owing to their volcanic temperament. The foreign captain can maintain better discipline than the native master for the reason that he inspires more fear, but occasions are not rare when the crew have risen against the foreign officers and taken temporary possession of the deck. Quite recently, some of the English officers of a Japanese ship, while in harbour, were assaulted by the crew for refusing to contribute wine or money to a new year's feast, and were compelled to seek safety by flight ashore, or by locking themselves in their cabins; on another occasion the Japanese quartermaster refused to obey the English mate's orders to dip the ensign to a passing steamer, and, although the insubordinate sailor was punished for his offence, the mate was advised to leave the ship and the port lest the sailor's threat to take his life would be carried out. There are no special laws applying to discipline on board ship in Japan; at best an offence is treated as an ordinary police case. ✓ Absence of discipline.

The acts recently passed for the encouragement of navigation and shipbuilding are measures of great prospective importance. They may be summarised as follows: the first provides that under certain conditions as to right of requisition by Government, carrying of mail matter, training of apprentices, &c., a subsidy shall be given to every Japanese steamer of over 1,000 tons gross tonnage, and ten knots speed, and under five years old. The scale is 25 sen (7d.) per ton for every 1,000 miles run on a foreign voyage. An increase of 10 per cent. being allowed for every additional 500 tons burden, and for every additional knot of speed the allowance is to be increased by 20 per cent. Thus for a foreign voyage of 10,000 miles, a vessel of 1,000 tons and ten knots speed would receive 2,500 yen. A vessel of 6,000 tons and 15 Acts for encouragement of navigation and shipbuilding.

knots speed would receive 60,000 yen. After the lapse of five years an annual reduction of 5 per cent. in these amounts will be made.

✓ The second Act provides that for Japanese-owned steamers of over 700 tons, built in Japan, there shall be granted a bounty of 12 yen a ton for vessels between 700 and 1,000 tons, and of 20 yen a ton for vessels of over 1,000 tons. If the engines have been put together in Japan, a further bounty of 5 yen for each unit of actual horse-power will be given.

Up to the present but few ships have been qualified to claim the allowance, and their owners have been discouraged from applying by the difficulties placed in their way by the surveying officers. Shipowners, in fact, complain that after the passing of the Act, the Government became apprehensive lest the bounties might assume undue proportions unless some limitations were imposed, and thereupon issued special regulations which virtually cancelled the privileges offered by the new law. In consequence of the new stipulations, steamship companies found themselves compelled to modify the plans of ships which were almost completed in England, at considerable expense, and without any improvement to the steamers. When the best steamer in the possession of the Japan Mail Company was submitted for examination, she was subjected to such a severe test as to cause considerable injury to her hull. A whole month was required to repair the damage. In this department, as in many others, the inspection seems to be entrusted to men who have no practical knowledge, and who are unable to exercise any intelligent latitude in interpreting the spirit of a regulation.

The new ships which are now being built especially with a view to satisfy the requirements of the new Act, should pass the ordeal more easily; but the regulations passed under the Acts are capable of being made so stringent, that the amount to be disbursed will really be much at the discretion of the Minister of Communications. For example, the owner of ships claiming the subsidy may not employ foreigners in their offices, nor on board the ships in any capacity unless they receive the permission of the Minister of Communications; before starting on a foreign voyage they must report the route to be taken, the ports of call, the fixed date of arrival and departure from the various ports, &c., and in the case of vessels built in Japan which claim the bounty, it is laid down that the shipbuilding yard must come up to the standard prescribed by the Minister of Communications. Vessels receiving the bounty may not without permission make use of any articles of foreign manufacture, &c.

Small
steamers more
profitably
built in
Japan.

Besides the Government dockyards, Japan has four private shipbuilding yards where steamers up to a certain tonnage are turned out, and nearly all the small steamers of 500 or 600 tons which run on the coast are home-made, that is in the sense that they are put together in Japan, but all the parts come out from Europe. Small steamers cannot obtain remunerative freights on the voyage out from England, and the expense of bringing them out turns the scale in favour of the home-built article. But when

the new tariff comes into force, the cost of importing shipbuilding materials will be largely increased, for not only will the new scale of import duties be heavier, but duties will be calculated not as now on the initial cost of any article, but on its cost laid down in Japan, which in the case of iron and steel materials, is now between 20 and 35 per cent. over the price delivered on board ship in Europe.

In such undertakings as shipbuilding, skilful and economical management seems to be deficient. In a very large shipbuilding establishment, in regard to which I was able to acquire trustworthy information, the state of affairs is such as would rapidly reduce such an establishment to bankruptcy in England. It is supported by some of the wealthiest capitalists in the Empire, and the profit and loss account does not seem to be a matter of any consideration to them. Incompetent supervision, negligent and indifferent foremen, artificers without pride in their work, utter absence of discipline, no systematic division of labour, no attempt at time-keeping, scores of men slowly and inefficiently performing the work that would be done in England by a quarter of that number, officious and inexperienced youths from the Government engineering colleges, hampering the work by their meddlesomeness. These are the present characteristics of a great establishment which at one time possessed a name for good and sound work, but which since an attempt has been made to place the management entirely in native hands, is fast acquiring a name for scamped work and unsatisfactory performance of its contracts. As these things are managed at present, steamships will be built in Japan, and steamship companies will run steamers only so long as such heavy bounties and subsidies are paid as will make up for the losses caused by unbusiness like methods, and by the unwillingness to accept foreign advice and assistance.

Bad management in ship-building yards.

State of the National Finances.

As the private individual whose social position has improved finds himself obliged to spend more money, so Japan, now that the results of the late war have raised her amongst nations, also feels that this elevation has responsibilities which must be paid for. Financially her military success over China seems likely to prove a heavy and constant burden. The expenses of the war will, it is true, be more than covered by the Chinese indemnity, provided always China does not make default. The war expenditure amounted to some 235,000,000 yen, and the indemnity to be obtained from the vanquished country will come to 341,000,000 yen, thus leaving a balance of over 100,000,000 yen. But the outlays to which the country has now pledged itself on account of various enterprises, which are to be carried through within the next ten years, far surpass this amount. These enterprises fall under two categories, productive and unproductive works. The total outlays on pro-

Japan's increasing expenditure.

Schemes of
productive
public works.

ductive enterprises of which the programme has already been settled amount to 190,000,000 yen, and on unproductive works the outlays during the next decade will come to 325,000,000 yen. This will be the price which the nation will have to pay for the vast scheme of industrial and commercial development on the one hand, and of naval and military expansion on the other, on which the Government has decided to embark since the conclusion of the war.

The greater portion of the moneys appropriated to productive enterprises will be spent on waterworks, aids to banks, aids to navigation, the establishment of a tobacco monopoly, the establishment of an iron foundry, riparian works, extension of railways, extension of the telephone system, harbour construction, &c., and in course of time these outlays should bring in a considerable income.

The financial result of the war to Japan at the termination of the decade may be tabulated as follows:—

	Amount.	Total.
	Yen.	Yen.
Balance lying in the treasury on the outbreak of the war	62,000,000	
Indemnity to be received from China ..	341,000,000	
War loan	125,000,000	
Voluntary contributions	4,000,000	
Industrial undertakings loan	135,000,000	
Railway loan	80,000,000	
		747,000,000
Expenses of the war	232,000,000	
Programme of productive enterprises ..	190,000,000	
„ Army and Navy expansion ..	325,000,000	
		747,000,000

The national
debt.

To the net result is the disappearance of the surplus of 62,000,000 yen, and an addition to the national debt of 340,000,000 yen, involving an annual payment of 17,000,000 yen on account of interest, a portion of which, however, will be recouped from the future profits of the productive enterprises.

As the outcome of a victorious campaign this result can scarcely be looked upon as satisfactory. It is true that since the war Japan has doubled her industrial efforts, that the development of her national resources has made wonderful progress, and that she has pushed herself into a prominent position as an eager competitor for a share of the world's commerce, but these achievements could have been attained without a war; and the increased national expenditure to which the country is now committed cannot be accepted complacently as the price paid for Japan's material progress; on the contrary it is calculated to seriously retard the attainment of that position in the industrial world which Japanese statesmen are so eager to see their country secure.

Before the war Japan's public debt amounted to 286,000,000 yen: as the schemes detailed above approach completion the national indebtedness will increase until the year 1902 when it will have reached the sum of 500,000,000 yen, and as the interest on all the public loans has now been brought to a uniform rate of 5 per cent. the annual charge on the revenue will then be 25,000,000 yen. Up to the year 1895 the annual budget presented to Parliament had never exceeded 100,000,000 yen. The average of the 10 years 1885-94 was under 80,000,000 yen, and well under 70,000,000 yen if extraordinary expenditure is excluded. In the present financial year the ordinary expenditure alone has mounted up to 123,000,000 yen, and in eight years' time, when the programme of naval and military expansion is completed, it is estimated that the ordinary expenditure will have reached the figure of 173,000,000 yen, or about twice the amount which was sufficient before the outbreak of the war. This, of course, means a permanent strain on the resources of the country. The simplest way of showing in what direction the national expenditure has increased and is still increasing, is by presenting a table showing the ordinary expenditure in 1893, the year before the war; in 1897, three years after the war; and what the expenditure is estimated to be for 1904.

How the national expenses are increasing.

ORDINARY Expenditure.

Department.	Amount.		
	1893.	1897.	1904.
	Yen.	Yen.	Yen.
Civil List	3,000,000	3,000,000	13,000,000
Foreign Department	624,000	1,517,000	
Home	7,636,000	6,492,000	
Finance	24,915,000	41,704,000	54,000,000
War	12,316,000	29,187,000	30,000,000
Naval	5,141,000	9,896,000	28,000,000
Justice	3,452,000	3,552,000	8,000,000
Education	959,000	2,049,000	
Agriculture and Commerce	929,000	1,424,000	
Communications	5,470,000	11,672,000	20,000,000
Colonisation	..	12,551,000	14,000,000
Aid to navigation	..	..	6,000,000
Total	64,442,000	122,984,000	173,000,000

In order to meet this increased outlay the country will have to provide some 85,000,000 yen more than in former times. This has, of course, to be done by means of increased taxation. The ordinary revenue is chiefly derived from two sources, taxation and Government productive works. These two supply 98 per cent. of the revenue. Taking 1893 as an average year before the war, the revenue was:—

(1207)

E

From—					Amount.
					Yen.
Taxes	..	..	..	..	72,470,000
Productive works	..	..	..	..	11,743,000
Miscellaneous	..	..	..	..	1,670,000
Total	..	..	..	..	85,883,000

By 1897 two taxes had been increased, those on spirits and on tobacco, and two new taxes had been enacted, the Registration Tax and the Trades Tax, and these yielded a net gain of 26,000,000 yen. The other taxes which had remained unchanged also yielded a higher amount, as also did the State productive works, so that by 1897 the estimated revenue had increased to 121,429,000 yen. This is still far short of what will be required in 1904 when the estimated expenditure will be 173,000,000 yen. But by that year it is expected that the revenue from existing taxes will have continued to grow in the same ratio as in the past, and that the new taxes, which in 1897 were only partly in operation, will by 1904 be yielding their full return. Productive Government works on which large sums are being spent will also be yielding larger profits; and by that time Formosa may be expected to more than pay its way; so that the prospect for 1904 is shown on the annexed table:—

ESTIMATED Revenue in 1904.

					Amount.
					Yen.
Old taxes	..	..	..	..	57,557,000
Increased, or new imposts	..	..	..	..	59,053,000
State industries	..	..	..	..	35,000,000
Miscellaneous	..	..	..	..	3,000,000
From Formosa	..	..	..	..	8,600,000
Total	..	..	..	..	163,110,000

Leaving about 10,000,000 yen to be provided annually by new taxation or by means of a loan.

This can easily be done, but at present it is clear that Japan is living beyond her income.

It may be of interest to know the sources from which the Japanese Government have decided to obtain the extra money required to carry out their expensive programme. One impost that has been augmented is the excise tax on sake (a fermented liquor made from rice). The new law fixes the tax at 7 yen for each koku measure, which means in English $4\frac{1}{2}d.$ per gallon. This brings in 24,000,000 yen to the revenue; and it is believed that the tax might be doubled without the consumption being

Where the additional money is to come from.

Tax on spirits.

reduced. The law also allows poor individuals not engaged in the trade to brew their own liquor up to a certain amount on payment of a small licence fee. The idea is that the poor man should not be robbed of his beer; but the result is that well-to-do persons take advantage of the privilege, and that the revenue suffers. If everyone without exception was compelled to pay the excise, it is believed that the Treasury would secure another 4,000,000 yen.

The revenue from tobacco was formerly obtained by means of a stamp duty, but now the Government has decided to establish a State monopoly. The plan is that the Government will issue licences to cultivators to grow the leaf which must afterwards be sold to the State at a certain price; and then the State will resell it to the trade at an advance of something like 80 per cent. The estimate is that the State will resell for 22,500,000 yen what it purchases for a little over 12,000,000 yen; but after working expenses and interest on capital have been deducted the net profit to the Treasury is expected to be a little below 8,000,000 yen. This tobacco monopoly will come into effect in January, 1898.

A further sum of 13,000,000 yen is expected from two new taxes, the Registration Tax and the Trades Tax. The former is a tax levied upon the registration of all companies, firms, professions, patents, births, deaths, marriages, &c. The Trades Tax is levied upon sales, contracts, capital invested in companies, and rent of business premises, but in certain cases such as banking, manufacturing, docks, &c., the tax will not be enforced until three years after the commencement of the business.

Everything points to a coming period of financial stringency when the burden of taxation must grow more and more heavy if an equilibrium is to be maintained. This cannot but re-act upon trade, and must also affect the position of the British merchant in Japan who in two years' time will pass under Japanese jurisdiction, and will have in common with the native to bear his share of the national expenditure.

The Island of Formosa.

A brief description of Japan's new territory may preface my remarks on the present condition of trade in Formosa, or Taiwan, as the Japanese style the island officially.

This large island lies about 90 miles from the Chinese mainland, at its nearest point; its greatest length is 225 miles, and except at its northern and southern extremities, where it tapers to a point, it varies from 60 to 80 miles in breadth. The area is 14,000 square miles, and a vague guess puts down the population at 2,000,000.

A flat plain about 20 miles broad runs along the west coast for nearly the whole length of the island, and it is only this narrow strip that up to the present time has been known to the world of commerce; the remaining three-fourths of the island

has been a *terra incognita* rendered inaccessible owing to the implacable enmity which exists between the Chinese immigrants and the aboriginal natives of the hill districts. These independent savages occupy the whole region of forest-covered mountains of central and eastern Formosa. Between these aboriginal tribes of the mountains, and the Chinese dwellers on the plains, are a race of *Pepohuans*, or civilised savages; they are the pre-Chinese dwellers of the plain, who have been gradually driven inland by the Chinese settlers towards the savage territory, and they thus occupy a position between the hammer and the anvil. They are fine men physically, and mild in disposition, and in the hands of the crafty Chinese they invariably get the worse of a bargain.

The island is very badly off for harbours, and steamers visiting the treaty ports lie off in an open roadstead. The best harbour is at Keelung, formed by a deep inlet in the rocky coast. The Japanese propose to construct a breakwater which will render it completely sheltered on all sides. This is the only harbour that can be entered by a deep draught steamer. At Takow, on the south-west coast, is a large lagoon, with a narrow opening to the sea, 70 yards in width, through a chasm in the rocks. With dredging this might be made a splendid harbour. On the east coast there are no sheltered harbours. The Japanese have established a few military posts on that side of the island, which are frequently visited by steamers on Government service, but there is no prospect of any trade developing in that quarter.

4 Natural resources of the island.

The natural resources of Formosa are capable of immense development. Coal, sulphur, and petroleum are known to exist, and the island produces rice, sugar, tea, camphor, hemp, indigo, turmeric, cassia, and valuable woods.

The total want of the means of internal communication as much as the insecurity of life and property has prevented a tithe of the wealth of the island from reaching the hand of man, but under Japanese administration these obstacles are being removed. Apart from the railway system which has been begun, the Japanese authorities have already constructed over 400 miles of roads, and laid down 100 miles of narrow gauge tramlines.

Japanese rule not yet fully established.

The Island of Formosa, which some day is destined to form such a valuable addition to the Japanese Empire, has not yet been long enough in the hands of its new masters for it to have been reduced to order; and it is yet early to compare the volume of its trade under the new régime with what it was under Chinese rule.

The Japanese from the very beginning have found the task of taking over the management of the island much more difficult than they expected. The population, except the aborigines, who for the purpose of trade scarcely count, are all of Chinese race; their education, mode of thought, and sympathies, are Chinese; and with that innate self-complacency of the race, they felt convinced that admittedly bad as their Chinese officials had proved themselves to be, their fate under alien rulers would still be

worse ; and the outgoing Chinese mandarins did not fail to make the most of the occasion, for if they could not make themselves regretted on their own merits, the next best thing was to be regretted as the less of two evils. From the Chinese mainland also there is no doubt that every encouragement was given to the islanders to put difficulties in the way of their new masters, and hopes were held out that if the Japanese occupation was made difficult, it would be of short duration. Of genuine patriotism there was none ; the national humiliation which the cession of Formosa implied did not weigh upon the hearts of the inhabitants ; what caused them to oppose the change of government was merely the apprehension that worse times were in store for them. And it must be admitted that on the side of the Japanese no attempt was made to re-assure the Formosans, or to dispel these alarms. Had the Japanese Government been as desirous then as they are now to gain the confidence of the people, they would have found their task much easier. But irritated, doubtless, by the resistance they met with when they proceeded to take possession of their prize, they entered upon the task in anger, and stick in hand, they laid about them right and left, till even the most submissive took alarm, and began to realise the truth of the mischievous lesson which Japan's enemies had been teaching. The work of pacification was attended with much severity, cruelty, and vindictiveness, the effects of which it will take years of honest and benign government to undo, for the Japanese are strangers in the land, and are not in touch with the natives. One harsh act is repeated from mouth to mouth by people predisposed to believe everything bad of the Japanese, while an act of clemency or justice does not go beyond the person who has benefited by it. Honest folk driven to desperation by the unrestrained licence of the soldiery, deserted their homes, took to the hills, and are now engaged in brigandage, with no inducement to return to honest life, and merely filled with a desire to revenge themselves on their oppressors.

Uncon-
ciliatory
methods of
the Japanese.

This lamentable state of things it need not be said is not the fault of the higher Japanese officials ; their plans for the peaceable organisation of a new government in the island were well devised, and where their immediate control could be exercised the treatment above mentioned did not take place, but they did not possess a trustworthy staff of subordinates to carry out their good intentions, and the island had to be left in a great measure at the mercy of non-commissioned officers, soldiers, gendarmes, and policemen.

Even in the civil departments serious mistakes were made. The chief difficulty of the Japanese administration was the lack of competent and trustworthy interpreters through whom they could communicate with their new subjects. With the laudable desire not to disturb the existing régime more than necessary the services of some of the old Chinese official employes were retained. There is not in the world—and the Chinese officials are the first to admit the fact—a more cruel, corrupt, vile creature

Japanese
officials the
dupes of their
Chinese
employes.

than the Chinese official underling; they are the harpies that fatten on the innocent and hard-working people throughout the Empire; and the Japanese made the mistake of employing such men and of placing confidence in them. Here was an opportunity that rarely falls to the lot of the official underling, and well did he use it during the short period he was in power. They extorted money from the wealthy Chinese under threats of denouncing them as in league with the rebels in the interior; and no complaint could reach the Japanese authorities until these scoundrels had been bought over. In the rough-and-ready way of administering martial law more than one innocent man forfeited his life because he had failed to sufficiently propitiate these false accusers; and others only escaped by a miracle. The ingenuity of these miscreants, trained all their lives in ways of deceit, plotting, and villainy, had now full scope; and, as an instance of their doings, I shall relate the case of a rich and respectable Chinaman who had been favourably known to foreigners for many years in Formosa, and whose assistance the Japanese authorities found very useful in establishing order in the north of the island. He was marked down by the Chinese subordinates in Japanese official employment as a valuable victim to blackmail, but failing to get anything out of him they plotted to fabricate evidence of his complicity with the insurgents; and to that end they forged a cheque in his name, and contrived that it should be found in the baggage of a band of dacoits captured by the Japanese troops, thus making it appear that he was supplying the rebellious natives with funds. This plot fortunately failed, but now that the Japanese have discovered the infamy of their Chinese staff they have too much reason to fear that innocent men have before now suffered through similar false accusations.

Natives have
misgivings
about
Japanese
intentions.

A want of understanding between the rulers and the ruled is at the bottom of the state of disorder and confusion which now prevails, and this misunderstanding is caused by the lack of Japanese able to speak the language of the natives of Formosa. This deficiency the Japanese are hastening to repair, and within a short time they will have in their service a large number of Japanese proficient in the language. They are also giving to young Chinese every encouragement to learn Japanese. The Japanese Government never had any intention of transforming the inhabitants of Formosa into Japanese pure and simple; or of making them abandon their own ways and adopt Japanese manners and customs; but so little mutual understanding was there between the two that even two years after the cession of the island, when the day arrived for the Chinese inhabitants to decide whether they would elect to become Japanese subjects or retain their Chinese nationality, many whose material interests clearly pointed to the advantage of becoming Japanese, refused to do so being apprehensive lest they would be deprived of their queues, compelled to wear Japanese dress; forbidden to educate their children in the much-venerated Chinese classics; debarred from the exercise of their religion, especially that part of it which

enjoins ancestral worship. Had the Chinese been given to understand that their own customs and usages would be respected as much as they are under British rule in Hong-Kong or Singapore they would have philosophically accepted the inevitable, and politically speaking become Japanese, but they were possessed by vague fears that a change of political status implied the renunciation of all that was dear and sacred to them; and the Japanese must be held largely responsible for what is now proving the very serious consequences of their want of foresight.

Under these unfavourable conditions it would not be surprising to find that the trade of the island had fallen off; but so far as can be seen from the custom-house returns both imports and exports were larger in 1896, the first complete year of Japanese occupation, than in 1894, the last year of undisturbed Chinese possession. It is not, however, easy to make an accurate comparison, for now that Formosa forms part of Japan, whatever trade passes between Formosa and ports in Japan is not shown in the returns, whereas formerly they were entered as forming part of the foreign trade of the island. On the other hand, the returns formerly published by the Chinese customs only showed the quantities of merchandise carried by vessels of foreign type; the large junk trade between Formosa and the mainland was ignored. Now the Japanese customs-house makes no distinction between junks and other craft; all vessels alike have to report and give an account of their cargo; and the junk-borne trade now goes to swell the customs returns.

Volume of
trade remains
the same as
before.

The ports open to foreign trade are the same as before. Tamsui with Kelung in the north, and Anping with Takao in the south. In addition to these there are two new ports on the west coast open to vessels of the junk type owned by subjects of Japan. As many as a thousand voyages a year are thus made from these junk anchorages across the Formosa Channel to the mainland of China, and it seems probable that a large share of the carrying trade, which if equal treatment was accorded to all vessels alike would fall to the steamers, will now be retained by the old-fashioned junk. These junks are all owned by Chinese, who as residents of Formosa have acquired the legal status of Japanese subjects. On the Formosa side they pass as Japanese craft, and may visit the special junk ports, while on the Chinese coast they are considered Chinese owned, and may visit the non-treaty ports, which are closed to steamers. Both in Formosa and on the China coast they receive the favoured treatment accorded to natives of the country. It is on the China coast that the advantage of this is most marked. Merchandise carried by steamer from Formosa to the mainland opposite must enter China either at Swatow, Amoy, or Foochow, and pay treaty tariff duty to the foreign customs; afterwards, when such merchandise is carried coastwise, more duties have to be paid to the native customs. The same merchandise may be sent from Formosa direct to destination by junk anywhere along the coast, perhaps altogether evading the payment of duty, and at any rate getting off much more cheaply than if it had

Chinese junks
have an
advantage
over steamers.

gone by steamer. Nearly 6,000 junks passed between Formosa and the China coast in 1896, while the number of steamers was only 360.

Japanese
hastening to
open up the
island.

Chinese
labour
necessary to
develop the
island.

Whether British trade will gain or lose by the cession of Formosa to Japan is a question difficult to answer. The Japanese are as eager to open up the island and to exploit its wealth as the Chinese were the reverse, and already they have done more in this direction in two years than the Chinese did in twenty. Given a few years for the rulers and ruled to adapt themselves to each other, and Formosa should become the richest corner of the Japanese Empire. Much depends whether Japan will encourage Chinese immigration, for the development of the island requires the presence of the patient and plodding Chinaman, freed from the harassing rapacity of the Chinese official. At present, the intentions of the Japanese Government on this subject are not known. It may perhaps postpone coming to a decision until it is seen whether Japanese labourers can be induced to migrate to the island; of this, up to the present, there is no indication, the very high rate of wages now ruling does not attract Japanese of a serviceable class—a number of men who failed to do well in their own country gave Formosa a short trial, and then returned to Japan. If the industrious Chinaman could obtain the same treatment in Formosa as he does under British rule in the Straits Settlements there is no question as to the degree of prosperity the island would soon attain. It will be the want of an industrious population, when order prevails throughout the island, that will retard progress. That Japanese of the right sort will quit their native land to found new homes in Formosa is improbable, and the climate will sorely handicap those who make the venture; but if the Chinaman can be induced to settle there then Formosa will flourish, and the British manufacturer will have no reason to regret that it has passed from under Chinese rule. Japan, for her size and population, is far and away a better customer than China, and on this reasoning the greater the extent of Japanese territory the better.

Products of
Japan have
favoured
treatment
compared to
foreign
articles.

There is, however, one consideration not to be lost sight of. Japan aspires to become a manufacturing country, and to enter into competition with the West. Under Chinese rule everybody was on an equal footing in Formosa—the same scale of duties applied to all. In a short time the new Japanese tariff will come into force, and this is much heavier than the old Chinese tariff, so that before long not only will our goods be taxed more heavily than formerly, but Japanese manufactures will be admitted free. In such things as the Japanese can compete with us, principally yarns and textiles, the Japanese manufacturer will in the Formosan field have preferential treatment amounting to about 10 per cent. on the value of his products.

Opium trade.

India will suffer to some extent in her opium trade. The Japanese Government aims at prohibiting opium smoking in the island just as it is forbidden in Japan; but in taking over the island she took over many thousands of confirmed opium smokers,

so such a drastic measure as absolute prohibition could not be put in force at once. It is the intention of the Formosan Government to issue licences to smokers, and to prepare the opium in a Government establishment; the theory being, not that a revenue should be derived from opium, but that the sale of a noxious drug should be controlled by the Government. Under the regulations, which at present are only in force in certain districts of the island, licences are issued to men who can satisfy the authorities that they have fallen into the opium habit. The licences are of three kinds, the monthly fees being the equivalent of 6s., 3s., and 7d., according to the class of smokers; and opium may only be imported and prepared by the Government. It is sold by the Government establishment at the rate of 12, 9, and 7 yen the 1 lb. tin, according to quality; and only licensed shops may retail it to licensed smokers. In the districts where the regulations are in force, unlicensed persons found smoking, or in possession of opium, are subject to a heavy fine, but in the districts where no preparation has yet been made for supplying the public with Government opium, the regulations are in abeyance and smokers supply themselves as best they can, presumably with opium smuggled from the mainland of China, because the importation is prohibited.

If it was worth while, opium could be easily smuggled into the island, for with such a convenient base of operations as the mainland of China, no preventive service could stop the drug from being landed in small parcels here and there along the coast; but once the Formosa opium regulations come fully into force the probability is that the smuggling will be the other way. The price which the Formosan opium office proposes to charge is less than it costs to prepare the same quantity of opium in China after the heavy import duty has been paid in that country.

The inhabitants of Formosa chiefly smoke Persian opium, and if the customs returns are to be trusted the importation has fallen from 404,000 lbs. in 1894 to 157,000 lbs. in 1896; but it is known that in the latter year large quantities were smuggled, and these figures, therefore, mean nothing.

The trade in camphor will probably undergo some modification. Camphor trees are not found in that part of the island occupied by Chinese settlers. They occur only in the county of the aborigines, or upon the immediate border, and up to the present time the destruction of trees has been carried on in the most wasteful manner. The mode of obtaining supplies of camphor was for foreign merchants through Chinese agents to advance money to the savage chiefs for permission to cut down trees. The stills were erected at the expense of the foreigners who paid a tax of 8 dol. a still to the Chinese authorities, and a local tax of 10 dol. on each picul (133 lbs.) of camphor produced. When the island was ceded to the Japanese the privileges which foreigners had enjoyed under Chinese rule, of having these camphor establishments in the interior, seemed likely to be withdrawn by the Japanese Government. The Chinese treaty, much

more than the Japanese, gives freedom of travel and trade to the foreigner; and if the limitations imposed by our treaty with Japan had been strictly enforced in Formosa, foreigners would have had to retire to the treaty ports. They would have been debarred from distilling or purchasing camphor in the interior, and they would have suffered heavy losses in abandoning the capital already sunk there. Considering that the present treaty had only two more years to run, the Japanese Government has consented to let matters remain in statu quo; and when under the new treaty, foreigners obtain the right to settle anywhere in the interior, they will be able to distil as much as they like. But there is also a probability that the preparation of camphor will be made a Government monopoly. With the Formosan supply under its control the Japanese Government could almost secure a monopoly of the camphor trade, for Japan and Formosa are almost the only sources of supply; and advantage may be taken of this to put Formosa's finances on a satisfactory basis. The lands where the camphor trees grow are not privately owned as is the best portion of Formosa's fertile plains, so the Government could appropriate the camphor producing districts without interfering with vested interests.

Suggested Appointment of a Commercial Secretary.

In my report on China I suggested the advisability of the appointment of an officer who would devote his sole attention to the development of trade. Wholly different as are the circumstances in Japan, and different, therefore, in some degree as the reasons for such an appointment in the latter country must be, I feel after my experience of it that I should make a similar recommendation in regard to it.

Foreign trade
centered at
Tokio,
Yokohama,
and Kobe.

Foreign trade in Japan may be fairly said to find itself confined to the capital, Tokio, and the two ports of Yokohama and Hiogo or Kobe. At Nagasaki there is a very great shipping business, but its "raison d'être" is entirely the export of coal. Nagasaki as a seat of shipping is considered to have a bright future: as a naval station it is now certainly an eastern port of first importance. It will very shortly be directly connected with the interior of the island by rail, and the development of railway facilities throughout the island should bring important and populous districts in the interior into direct touch with it, and open markets hitherto entirely unexploited. But as a seat of trade with Europe it may, for the present, be disregarded as a nullity. At the capital, Tokio, there is no direct foreign trade. But Tokio is the headquarters of all the Government departments, of nearly all the great joint stock companies, railways, factories, &c. It is from it that tenders are asked for the supply of all the costly requirements, both of Government and these companies, and it is the very heart of the whole commercial system of Japan. It is here that the principal economic journals

Tokio the
heart of the
commercial
system of
Japan.

are published, from it finance is regulated throughout the Empire, and here are found the master minds of Japanese bankers, promoters, and merchants. Osaka is somewhat similar, though a long way in the rear in all these respects, but it is in addition the great manufacturing town of the whole Empire, and both it and Tokio are large distributing centres in both of which much can be learned as to the ever varying wants of the people at large, and in both of which valuable evidence can be acquired as to the progress of Japan as a competitor with the West in productions hitherto Western specialities.

Yokohama and Kobe are the seats of nearly all foreign merchants resident in Japan, and it is at these ports that the entire import and export trades are carried on, the main object of which is the supply of the requirements of the Japanese people in general, and the purchase of their productions suitable for the markets of the West. As has been before remarked in this report, British merchants on the spot know their own business best, and can be best left to their own exertions to push such trade as pays them, but there are still several ways in which the services of an official can be brought into use to promote trade in general. But at both ports, the ordinary duties incumbent on the Consuls are so onerous and exacting that it is well nigh impossible for them to bestow on trade matters anything but the most desultory attention. It is always to be remembered that in addition to the ordinary duties of Consuls in other parts of the world all those in China and Japan are in addition vested with responsible civil and criminal judicial duties.* At the majority of ports it may be said that the infrequency with which the exercise of these duties is called for renders them not very onerous, but wherever there is a great trade, a great shipping, or a large foreign population, they become excessively so, and this is peculiarly the case at both Yokohama and Kobe; demanding, it may not be an exaggeration so say, at least half the Consul's time. Political matters in Japan, except perhaps in the ports in the Island of Formosa, do not make much if any demand on him, and the elaborate judicial system of the Japanese absolves him from the duty of pressing and discussing reclamations on the part of his countrymen against natives which forms so large a part of the work of his colleagues in China. But the daily duties and routine of his office are, even apart from the judicial matters, pressing and absorbing, they require immediate attention, and before their demands consideration of questions affecting trade prospectively must be deferred or altogether abandoned. His instructions require him to prepare one general report each year. If he does this, all that is absolutely incumbent on him is done, even though the report consists merely of the baldest summary of customs statistics, without one single original thought or suggestion in it from beginning to end of its 10 or 15 pages of printed matter.

* Such duties will cease when the new Treaties come into force, which cannot, however, be before July 16, 1899.

Consuls not in a good position to make a systematic study of trade questions.

It is not only that his daily duties make pressing demands on the Consul's time and thought, but the nature of his duties restrict his movements within narrow limits. It is not then to be expected that at the two great ports of Yokohama and Kobe, a Consul can give attention to general commercial questions or study the mass of material in the Press, still less to take the trouble and labour that are necessary to collate and digest and reduce it in such a form as to be easily intelligible and attractive to busy men in England, or even if they do all this, is it possible to do it with the promptitude that is necessary to render it of any value. Moreover, a Consul however capable and energetic he may be in the discharge of his proper duties may not have the special aptitude required in an official whose functions I have now under consideration.

Frequent change of post a bar to systematic research.

There is, moreover, another reason why Consuls in Japan are not competent to supply the information which British manufactures should possess. They frequently change their post, and they can never tell how long they may remain at a particular port. They neither have the opportunity of making a systematic study of the trade of their district, nor is it in human nature to begin a work which there is every probability will have to be dropped before any good results have been attained. The feeling of responsibility cannot weigh heavily on a man who feels that he is merely a locum tenens; both in China and Japan this frequent shifting from one post to another, and the uncertainty as to the length of any official's stay at any one post seriously detracts from his usefulness. These are drawbacks which are inevitable in services constituted as are the China and Japan Consular establishments, but the fact that this is to furnish an argument for entrusting this very important part of the Consul's duties to one permanent official in whose methods there can be some continuity and consistency.

A commercial secretary must have special qualifications, and above all must be interested in his work; for the scope of his duties can only be very generally described, and it must be left to him to seek out opportunities and discover directions in which he can render good service to British trade.

At Tokio there is and must always be a wide field for investigation, and much valuable information could undoubtedly be acquired by an officer taking an interest in trade, who has made a study of its past, who can bring to bear on it an intelligent and trained observation, who associates as far as opportunities allow him with the principal native bankers and merchants, company promoters and directors, with the members of the Japanese Chamber of Commerce, and the officials of the Department of Agriculture and Commerce of the Government railways, and of the purchasing department of the War Office and Admiralty.

Functions of commercial secretary incompatible with duties of regular Legation staff.

The members of the staff of H.M. Legation are probably exclusively absorbed in political matters, and there would, I assume, be good reasons why they should not be engaged in such duties as are now being considered.

Under these circumstances I am disposed to make the same suggestion that I have done in regard to China that an officer should be appointed to the staff of the Legation who would devote his sole attention to questions of trade, and whose function should be to promote its development by all means recognised as legitimate by H.M.'s Government. In regard to Japan, at the present moment, I am disposed to urge this suggestion very strongly, at least as a temporary experiment for a period of say five years.

A special officer required.

Trade here, great though the development which has already taken place in it, is in a marked state of transition, its future though at present full of promise is at the same time full of uncertainty: the course which it may take may be of vital importance to the interests of British manufactures both from the point of view in Japan as a purchaser from England, and as a competitor with her, and I consider that it will well repay careful watching and the preparation of full, timely, and intelligent reports on it. It has been said that Japan is a country of uncertainties, and that it is always the unexpected that happens. Fifteen or even 10 years ago no foreigner, no matter what his experience in the country, ventured in his wildest estimates to anticipate that it should ever arrive at its present commercial position, or had the least prospect of it ever showing any sign of becoming a great manufacturing centre. Many of the same foreigners now believe that its development heretofore is only an earnest of what may come in the future, and that we must count upon Japan as a formidable competitor, at least in all Eastern markets, and possibly in those of Australia as well. No one can tell what the future may bring. One successful foreign war might well throw the country back for 50 years. The new experiment of a gold standard of currency just adopted may deprive her of many of the advantages which cheap silver has hitherto almost poured upon her, and over-speculation may involve commercial disasters spreading ruin all round. But granting her exemption from all these calamities, there can be little doubt that Japan has a future as an industrial power, and that if to the technical and inventive powers of her people she ever succeeds in adding the qualities of honesty and skilful management that future will be one whose gradual progress is well worthy of attentive watching on our part.

Trade is in a state of transition and therefore requires careful watching.

In what way, then, can the presence of a commercial secretary be best utilised in Japan, and what services can be rendered by him in promoting the commercial interests of his countrymen that would be sufficient to justify the expenditure necessitated by his appointment? In many respects these are similar to those which I have already detailed in my report on China, but, just as no two countries can be more unlike each other than are Japan and China, so in Japan the duties of a commercial secretary must differ in many ways from those appertaining to a similar post in China. To avoid the necessity of referring to the China report, I shall now suggest in full the scope of duties which I think such an officer should perform in Japan.

In what way a commercial secretary can render good service.

To collect the fullest information on the whole trade of Japan, The scope of his duties.

place it in an intelligent and concise form, transmit the results to the Foreign Office at a very early date, and do this frequently. At least, an exhaustive quarterly report should be prepared, and the aggregate of the whole should be collected in an annual report, all these reports being published in the ordinary series of commercial reports issued by the Foreign Office. In addition to this, a brief summary of monthly statistics should be prepared for publication in the Board of Trade Journal, but, if this latter suggestion be carried out, as may easily be done, with some fulness, perhaps it would be sufficient if two reports were issued by the Foreign Office in the course of each year, say one for the first six months, January-June, and the second with statistics for the whole year, but specially referring to the course of trade during the second half, and to points not dealt with in the first. In the latter case the monthly summaries for the Board of Trade Journal should, in addition to statistics, refer to the details of the principal branches of trade, to commercial movements, development of new industries, state of money market, and other kindred topics that may have come into note. A capable, shrewd, and intelligent observer, acquainted with the language, carefully following the contents of the large commercial Press of Japan, the reports of Chambers of Commerce, and other trade associations, mixing freely with persons, both foreigners and Japanese, interested in or technically acquainted with trade, versed himself in its recent history, and trained and accustomed to follow its movements, can acquire a mass of information more or less practically useful to British producers seeking, or already possessed of, a foothold in the Japanese markets, and always interesting in the form of reports.

The changing conditions of trade in gross as distinct from detail, for example the increasing import of raw material, should be carefully noted, and this can best be done by study of the various economic and trade journals published in the capital; new openings for British products should be sought, and the progress of Japan as a manufacturing nation, as a producer of those articles which sooner or later are certain to come into competition with Western products, be described. Movements and conditions of labour, more especially the strong tendency which is now manifest to increase very largely in cost, in company with the greatly increased cost of living, and greater demand for luxuries among all classes of the people, are also likely to afford very considerable scope for writing to an intelligent, careful, and expert observer.

The Board of Trade Journal has of late made somewhat of a speciality in dealing with these subjects, but its source of information is an English newspaper published in Japan, and the results are merely the reprinting of extracts from its columns. These at best are but a feeble index of what might and should be furnished by an expert official, whose special duty it was to attend to these matters. They are also almost exclusively undigested and uncorrected summaries or translations of what

appears in the native Press, they are invariably one-sided and therefore often misleading, and their adoption by the editor of the Board of Trade Journal has and may again lead him into filling his pages with matter of little value. As one example of this I may cite an extract from the newspaper referred to of over six pages in the Board of Trade Journal for July, 1896, of interesting details concerning "the sugar industry of Formosa." The whole of this was a plagiarism from the Annual Report of H.M. Consul for Tainan on the trade of his district a few years ago, and however interesting the details were at the original date of publication they were in many items utterly inapplicable to the present, and the whole internal evidence of the extract clearly showed that it had been written some years previously.

2. Besides this series of monthly, quarterly, half-yearly, or yearly reports, special monographs on particular subjects could also from time to time be prepared either by special request from Chambers of Commerce or trade associations of England, or at the commercial secretary's own initiative. As an example I might quote the report on cotton manufactures in Japan forwarded from the British Legation some years ago, but which to this day might most advantageously be consulted by British manufacturers. This report was of a peculiarly exhaustive nature, and evidently required a very great amount of labour in its preparation.

The woollen trade of Japan, the prospect of an increasing demand for, and consumption by natives of, all classes of woollen goods, of a developing manufacture of these goods in Japan itself from imported raw material, are now well worthy of special treatment. The development of Japan as a maritime power, the growth of the spinning industry (treated at length in this report), the prospective results on the existing foreign trade of the Empire of the opening of the whole country to trade and residence on the part of foreigners, the effect in like manner of the new import tariff, by which heavy import duties are imposed on every single staple of the import trade; the condition of the labouring classes and of work and wages in Japan are all also subjects worthy of special treatment in the immediate future, and might each and all be made the theme of interesting and valuable monographs. Monographs somewhat of these descriptions are now from time to time prepared in H.M. Legation. They are, however, irregular in appearance, as a rule they are not the production of an official of local or technical experience or with any knowledge of the language or people, and their value must, therefore, be much less than if they were prepared by an official unhampered by these drawbacks.

3. In a very short period all foreigners in Japan will come under the jurisdiction of the Japanese law courts, and in these courts redress will therefore have to be sought in future in all cases of dispute, even between foreigner and foreigner, and it will be by Japanese law alone that those disputes will be decided by Japanese Judges. Japanese commercial law is at present in a state of transition, but I found among foreigners in Japan, and in saying this I do not confine myself to merchants alone, the most complete

ignorance, even as to the present elementary principles and leading provisions of that law. Is it not of primary importance to learn something both of its administration and provisions, and especially to be careful to gather as much from it, from its application in cases now occurring from day to day among natives, as is likely to prove useful in the future for the guidance of British merchants, both in transactions among themselves and with natives? I have seen some volumes of Japanese law reports in imitation of those issued in England, and I have had an opportunity of glancing through manuscript draft translations of a few extracts from these reports, but I have been unable to find any such translations in print.

It should be the duty of a commercial secretary to peruse these reports regularly, and to translate whatever in them might appear worthy of publication for the guidance of British merchants, the publication being afterwards made on the spot by the British Legation, and if desirable, subsequently in the Board of Trade Journal. Foreign merchants in Japan, and in this question consigners and shipowners in England are also largely and vitally interested, have been so long solely accustomed to look to their own laws, administered by their own officials, that their position in the new state of affairs will for a long time be one of great difficulty and intense bewilderment. I think they may fairly look to their own officials now for whatever enlightenment can be given to them, and the only hope for the performance of this duty lies in a commercial secretary acquainted with the Japanese language, and more especially if to his other qualification is added some knowledge of the general principles of law, and experience in its administration.

4. Whether it exists rightly or wrongly I shall not presume to say, but there cannot be a particle of doubt that a distrust not only of the capacity, but even of the integrity of Japanese courts among foreigners of experience and standing in Japan is so widespread as to be well nigh universal. The foreign merchant will submit to almost any loss, any injustice, rather than lose time and money and have his patience and self-respect both sorely tried by pursuing what he considers the will-of-the-wisp of satisfaction against a native in a Japanese court of law. The new condition of affairs will not remove this serious impediment to commercial progress at least for several years. While it continues foreign merchants will in the future as in the past and present, have to seek redress against native defaulters in the native courts or go without it, but in the case of disputes among themselves they will be eager to avail themselves of any means of arbitration rather than submit to the fiat of a Japanese court. Her Majesty's Consuls have by what, in the case of all the far East, whatever it may be in Western countries, appears to be an ill-advised restriction, been lately forbidden to act as arbitrators, and merchants will, therefore, be debarred from their services as such, so long as this restriction is maintained. But a commercial secretary might be frequently availed of, and if his countrymen had any reason for

confidence in his knowledge and experience of the principles of English commercial law, probably would be ; and I consider that much public benefit might result from those services. And apart from the question of general capacity and integrity of the Japanese courts, assuming even that their members possess both in the very fullest degree, the question of difficulty of exact interpretation arises. Disputes between British merchants are not unseldom founded entirely upon the construction of a single sentence, and the best of native interpreters in the Japanese courts would be wholly incompetent to convey to the minds of the presiding Judges even a glimmering idea of the nicety of the point on which the whole dispute may be founded. Consider, for example, a dispute between a British consignee and a British shipmaster on the construction of the terms of one clause in a bill of lading.¹ The translation of all the conditions would probably only show to the presiding Japanese Judge a series of repetitions without a shade of difference in meaning between each, and he would be in a sea of bewilderment as to what was the point of dispute between the parties. Such cases might well and mostly certainly will be settled by an arbitrator, by a non-professional one, a brother merchant, if none other be available, but with far more satisfaction to the parties if it can be done by an official whose services, position and experience and knowledge, both of ordinary commercial matters and of commercial law, command their entire respect. Such an official can be provided by Her Majesty's Government in a commercial secretary, and the provision of such seems but a small recompense for the deprivation of those established courts of English law to which merchants in Japan have grown accustomed by long usage, and relying on the continued maintenance of which they established themselves and permanently invested their capital in Japan. To Japan, most of them are now irretrievably bound, and any softening of the new conditions under which they must henceforth live is but a small tribute to the great services which they have rendered, not only to their own mother country, but to Japan in the promotion and development of the great trade now existing between the two.

5. A good influence may be exerted by a commercial secretary, always provided that his official status and reputation are both sufficiently high to command respect, in preventing the mischievous and tyrannical boycotting now so common among Japanese merchants against foreigners, and by publishing in a few instances official accounts of particularly glaring cases, he might contribute largely to put a stop to the practice altogether.

6. The knowledge that a watchful eye was being kept upon proceedings in the courts of law, and that glaring miscarriages of justice would meet a ruthless exposure, not in the small local journals of Japan, but in official publications and the Press in England, might exercise a good effect upon the judges. As to this and the preceding point it may be remarked that no people

in the world are so sensitive to outside criticism as the Japanese. They will view with equanimity the most shameless commercial dishonesty, or the exposed corruption of a member of their judicial bench, so long as the knowledge of any or all of these is confined within the limits of Japan itself. But let Europe or American criticism be candidly brought to bear on any of these, and the whole nation is speedily roused to condemn it.

7. Chambers of Commerce in England frequently make suggestions to the Secretary of State for Foreign Affairs regarding the assistance which may be given by Her Majesty's Consuls abroad; and they describe in detail the points on which they want information. It would be for the commercial secretary to consider to what extent in Japan these suggestions can be given effect to; and to advise the different Consuls of the direction in which they should pursue their enquiries.

At present it is a common custom for manufacturers in England to address inquiries simultaneously to all Consuls in Japan. These frequently produce conflicting answers, each Consul judging from his own district alone. All such enquiries should be addressed to the commercial secretary, who from his knowledge of the whole country could alone supply the information desired. By his intervention, also, firms in England desiring to be put in communication with houses in Japan, could be put on the right track; and similarly, Japanese business men could be put in touch with firms in England.

8. Some of our British products are being driven out by imports from other countries, or by articles of home make. This requires careful watching. Samples, and all possible information regarding price, native preferences, mode of packing, &c., should be sent to England; and this work can only be done completely from one central office like that of a commercial secretary.

9. An important part of this officer's duty would be to obtain early information of projected public works, so that our people could be early in the field to secure contracts or supply materials.

10. The immediate future of Japan is well worth careful watching and treatment by an expert. What will be the effects of the opening up of the country, the establishment of a gold currency, and the new import tariff—all of these may seriously affect trade as it at present stands.

11. At present there is somewhere one connecting link wanting between the manufacturer in England and the consumer in Japan, and while the former is to a large extent represented by the British merchant in Japan, he is not yet fully so. The merchant in Japan with his native constituents attentively watch the charge of markets, and send home particulars of everything that is likely to find a sale. But these particulars are not necessarily sent to England alone. The merchant in Japan, where he acts for himself, will seek the cheapest market, be it in England, Germany, or the United States, and if he thinks a novelty can be

supplied cheaper by either of the latter, he will naturally go there. But even when he sends to his own country it may happen that his indents are not fulfilled. Each merchant in Japan is connected in business with certain manufacturers in England, represents them in Japan, and is bound, as it were, to go to them alone for whatever he requires from England. They may not be willing or able to undertake what he in Japan requires in particular or in special instances, and the result is that the order is entirely dropped or is fulfilled in another country, whereas had full publicity been given to the fact that such and such goods were likely to find a sale in Japan, there might have been a score of manufacturers in England ready to supply them, who under present circumstances never heard of them till it is too late. I cannot entertain any confident hope that a commercial secretary would adequately fill the gap that undoubtedly now exists. As he gained experience he would to some extent, but every possible qualification cannot be found in one single individual. We require a knowledge of the Japanese language, people, and trade history ; a trained and acute power of observation, a faculty for logically marshalling facts and recasting voluminous statistics, a readiness of pen, descriptive powers, and some knowledge of law. To all these we can scarcely hope to add expert acquaintance with various branches and staples of trade, but the want of that may be remedied in some degree by observation. Even the best man in these respects will, to a great extent, be found wanting ; but such an appointment furnishes the only prospect of even very partially filling the present gap, and the advantage to be gained is worth making the trial.

LIST of Samples of Cotton Cloth.

MADE OF OSAKA SPUN YARN IN POWER LOOMS.

Number.	Description.	Measurement.	Currency.	Sterling..
			Yen. c.	s. d.
1	Drill	40 yards long ..	4 0	8 4
2	Cotton flannel ..	30 " ..	3 70	7 9
3	Striped ditto ..	30 " ..	3 30	6 11
4	T-cloth	24 " ..	1 60	3 4
5	"	24 " ..	1 80	3 9
6	Cotton crape ..	6 " ..	0 70	1 6

MADE OF OSAKA SPUN YARN, WOVEN IN HAND LOOMS.

Number.	Description.	Measurement.	Currency.	Sterling.
		Feet. inches.	Yen. c.	s. d.
7	Grey cloth	69 6	1 0	2 1
8	"	69 6	1 11	2 4
9	"	69 6	0 78	1 8
10	Cotton cloth	34 0	1 13	2 4½
		Yards.		
11	"	30	3 80	8 0
		Feet.		
12	"	34	1 5	2 2½
13	"	34	0 85	1 9½
14	"	31	0 37	0 9½
15	"	34	0 80	1 8
16	"	34	1 70	3 7

MADE OF ENGLISH YARN IN HAND LOOMS.

Number.	Description.	Measurement.	Currency.	Sterling.
		Feet inches.	Yen c.	s. d.
17	White cloth	34 9	1 14	2 5
18	Grey cloth	34 9	1 32	2 8
19	"	34 9	1 30	2 7½

TOWELS MADE IN OSAKA.

Number	Description.		Currency.	Sterling.
			Yen. c.	s. d.
20	2 towels	Per dozen ..	1 30	2 7½
21	2 "	" ..	2 80	5 10
22	2 "	" ..	2 40	5 0

HOSIERY.

MADE IN OSAKA.

Number.	Description.		Currency.	Sterling.
			Yen. c.	s. d.
1	2 white vests ..	Per dozen ..	2 45	6 2
1A	1 white vest ..	..	5 0	10 5
1B	1 " ..	..	6 0	12 6
1C	1 " ..	..	6 0	12 6
1D	1 " ..	..	6 15	12 10
1E	1 " ..	..	9 0	18 9
2	2 white vests ..	..	2 0	4 2
3	2 " ..	..	3 60	7 7
4	2 net vests ..	..	3 10	6 6
5	2 " ..	..	3 0	6 3
6	2 " ..	..	2 95	6 2
7	1 pair drawers ..	..	6 0	12 6
7A	1 " ..	..	2 60	5 6
7B	1 " ..	..	9 0	18 9
8	Cotton flannel vest ..	..	5 70	12 0
9	2 pair socks ..	..	0 98	2 0½
10	2 " ..	..	1 20	2 6
11	2 " ..	..	1 10	2 2½
12	2 pair stockings ..	..	3 30	6 11
13	2 pair socks ..	..	2 35	4 11
14	2 " ..	..	2 46	5 2

NOTE.—The prices quoted are for wholesale.

WOOLLEN Materials.

OSAKA MILL.

Number.	Description.	Measurement.	Currency.	Sterling.
		Yards.	Yen. c.	£ s. d.
1	2 flannel	40	20 0	2 1 8
2	4 flannel	40	18 80	1 19 2

TOKIO MILL.

Number.	Description.	Measurement.		Currency.	Sterling.
		Inches.		Yen c.	s. d.
3	2 rugs	62 by 48	Each ..	4 0	8 4
4	2 "	62 48	" ..	4 50	9 5½
5	3 "	62 47	" ..	5 0	10 5
6	22 samples ..	4 feet wide	..	..	..
		Inches.			
7	Flannel	30	Per yard	0 35	0 9
8	"	30	"	0 40	0 10
9	"	30	"	0 45	0 11½

NOTE.—The prices quoted are for wholesale.

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DIPLOMATIC AND CONSULAR REPORTS.

MEXICO.

REPORT ON THE COTTON MANUFACTURING INDUSTRY IN MEXICO.

*Presented to both Houses of Parliament by Command of Her Majesty,
APRIL, 1898.*

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Report on the Cotton Manufacturing Industry in Mexico

BY MR. LIONEL CARDEN.

(Received at Foreign Office, March 22, 1898.)

The remarkable development of the cotton manufacturing industry in Mexico during the past few years directly affects so large a proportion of the total British imports into that country (see Annex A) that the subject calls for more than mere passing mention. Introductory.

In commencing the present report, the object I had in view was to follow up the statistics of this industry from its infancy to the present day, and to show, among other things, the effect which protective legislation has had on its development. The following were the sources of information which I had hoped to have been able to utilise for this purpose, being the only official or semi-official returns I had been able to find bearing on the subject for years prior to 1894:—

1. A report rendered to the Supreme Government by the Director-General of Agriculture and Industry on January 28, 1845, on the condition of the textile industries in the years 1843 and 1844.

2. A report on textile industries published in the annals of the Ministry of Public Works in 1854.

3. A return of cotton factories in 1856, published in the report of the Ministry of Public Works, dated June 30, 1857.

4. A return of cotton factories in 1863, published in the report of the Minister of Public Works for the year 1865.

5. A return of cotton and woollen factories in 1879, prepared by Mr. Emiliano Busto, and embodied in the report of the Minister of Finance for that year.

6. A return of cotton factories in 1888, drawn up by the statistical department of the Ministry of Public Works from data furnished by the committee of Mexican exhibits at the Paris Exhibition, published in the semi-annual statistical bulletin for 1890 (Vol. 3).

7. A return of cotton factories in 1892, drawn up by Mr. Eduardo Zarate, chief of the Mexican exhibit of manufactures at the Chicago Exhibition, published in the statistical year book for 1893 (Vol. 1).

After having classified the whole of the information contained

in these returns, for each factory separately, I found, on comparison, that the data, besides being extremely incomplete, were so obviously and hopelessly inaccurate as to be quite useless as a basis on which to form any deductions whatever, so I was compelled to abandon the task. With the exception, therefore, of a few figures relating to the industry in the years 1844 and 1879, which will be found in another part of this report, and which must be accepted with a certain degree of reserve, I have made no use whatever of these returns, as being calculated rather to mislead than to enlighten.

The law of November 17, 1893, which imposed a tax on cotton yarn and cloth manufactured in the country, made it obligatory on the owners of factories to furnish certain statistical information as to their machinery and output to the Inland Revenue Office at stated intervals. Thanks to this fact and to the courtesy of the Minister of Finance, who was good enough to place these statistics at my disposal, I have been able to make out a comparative statement (Annex B) showing most of the details of interest connected with the industry for the calendar years 1894-96, which from private information I have reason to believe are substantially correct. I take this opportunity of also acknowledging the valuable assistance I have received from Mr. John Bannister, importer of machinery for cotton factories, of No. 9, Callejon de Santa Clara, who, from his long experience in the business, probably knows more about the machinery used in the different mills than any one else in Mexico.

The rate of exchange at which Mexican dollars have been reduced to English money in this report is 10 dol. to the £, which is a fair average rate for the two years 1896-97.

History.

For centuries before the Conquest of Mexico, cotton spinning and weaving were understood and practised by the natives, and cotton cloth, both white and dyed, was the usual dress of the people and formed an important part of the tribute paid to the Mexican Emperor.

Under the colonial régime, the policy observed by Spain towards Mexico, as towards her other dependencies, was to check industrial enterprise in those directions in which it might interfere with the trade or industries of the mother country, so that it was not till after the Independence that any encouragement was afforded to the manufacture of cotton goods by other than the very primitive methods in use among the Indian population from time immemorial.

The first step in this direction was taken by the Mexican legislature in 1830, when a law was passed (dated October 16) for the establishment of a bank with a capital of 1,000,000 dol., for the purpose of supplying machinery at cost price to persons wishing to start factories, and of advancing money for their working expenses at 5 per cent. interest. The necessary capital was to be furnished by setting on one side 20 per cent. of the revenue derived from the import duties on foreign cotton goods.

This bank did not prove a great success, as the money loaned was

often not applied to the purpose for which it was intended, and as the funds at its disposal were constantly being requisitioned by the Government to meet the exigencies of the Treasury. It was eventually suppressed by a decree dated September 23, 1842.

In spite of the comparative failure of this particular measure, the general disposition shown by the Government to favour home manufactures, and the special protection afforded them against foreign competition, by means of heavy customs duties, and in some cases of prohibitions against the importations of certain classes of goods, had the effect of encouraging the investment of capital in the industry.

The first factory was started in the year 1834, near Puebla, and 10 years later there were 50 factories, mostly small ones, at work throughout the country, producing annually about 500,000 pieces of cloth, and 6,000,000 lbs. of yarn.

In Annex C of the appendix will be found a synopsis of the ^{Fiscal} duties leviable on cotton piece-goods under the various customs tariffs ^{legislation.} enacted by the Mexican legislature from 1837 to the present day, which shows the variations which have taken place at different times in the policy observed by the Government towards the home industry. It will be observed that down to 1853 low grade bleached or unbleached cottons were not allowed to be imported at all, while heavy duties were leviable on those of superior quality and on all coloured goods. The effect of such restrictive measures was soon felt in the immense increase of smuggling, not only over the northern frontier and in the thinly populated districts on the Atlantic and Pacific coasts, where there was practically no preventive service, but even in the large seaports, where the officials, being very poorly paid, were often only too ready to connive with merchants in defrauding the revenue. The attention of the Government being forcibly called to this state of things by the alarming decrease in their receipts, of which the duties on cotton goods formed a very important part, they at last realised that the only way to check smuggling was to abandon their protective system and remove all prohibitions from their tariff, reducing the duties at the same time to a scale calculated for revenue purposes only. The tariff of 1853 and that of 1856, which was even more liberal than the former one, were the practical realisation of the new policy, and although the Government kept up the habit of imposing additional duties whenever their financial necessities were more than usually pressing, to an extent which sometimes made the charges on imported goods as high as under the old tariffs, this was done indiscriminately and with no idea of protecting any special industry.

In the preamble to the tariff of 1872 the Minister of Finance showed that the additions in force at that time to the duties fixed by the existing tariff (that of 1856) represented an increase of 132½ per cent. over the original amounts, and stated that the object of the new tariff was rather to consolidate all these separate charges into one duty than to make any material alteration in the existing state of things, whether as regarded the rate of duties

leviable or the policy which had dictated the drawing up of the tariff of 1856. It is evident, however, from the duties imposed on low grade cotton goods in the subsequent tariffs down to 1892, that the interests of the cotton manufacturers were specially favoured, and the great increase which has taken place in the number and capacity of the mills, and the improvement in the quality of the goods turned out is directly attributable to the protection thus afforded them.

The present tendency of the Government is to somewhat reduce the duties on imported cottons, as the home industry is now thoroughly well able to take care of itself, and, favoured as it is by the very heavy premium on gold, has practically nothing to fear from foreign competition.

Condition of
the industry
in 1896.

In the year 1896, 107 establishments paid taxes to the Government as cotton factories. Of these, three were knitting mills, four were spinning mills, 88 were spinning and weaving mills, six were spinning, weaving, and printing mills, and six were for printing alone.

The aggregate motive-power of these factories amounted to 13,826 horse-power, and the machinery consisted of 13,660 looms, 448,156 spindles, and 24 printing machines.

The number of operatives employed was 20,994 between men, women, and children, and the amount of raw cotton consumed was 53,273,397 lbs., of which about a half was imported from the United States and the remainder produced in the country.

The output in the same year was 7,116,547 pieces of cloth and 3,858,829 lbs. of yarn and coarse thread. Of the cloth about 2,200,000 pieces were printed, a comparatively small amount was bleached, and the remainder, principally of heavy grades, represented the "manta," or grey cotton which forms the usual dress of the labouring classes. The yarn produced from the factories, which was not woven into cloth, was intended for the manufacture of "rebozos," a kind of shawl, which are almost invariably woven by hand.

Location of
factories.

The chart* which accompanies this report will afford a better general idea of the distribution of the cotton factories throughout the country, than any verbal description can give, though to supplement it I have added in Annex D a return showing the number of factories at work in each State in the year 1896, with the aggregate number of their spindles and the quantity of raw cotton they consumed. The population of each State is also given, to allow of some idea being formed as to the extent of the market in the immediate vicinity of the manufacturing districts. Roughly speaking it may be said that two-thirds of the total cotton goods manufactured in the country are the produce of mills situated within a radius of 150 miles from the capital.

The first factory established in Mexico, which was named the "Constancia," was situated in the State of Puebla, where the abundance of water-power and the density of the Indian population and consequent large demand for cotton cloth, offered special

* Sent to Manchester Chamber of Commerce.

inducements to industrial enterprise. The location of the other factories which soon began to be erected throughout the country was determined by a variety of causes, though in almost all cases their sites were chosen with a view to taking advantage of some stream or river for motive-power. In some instances, as in the States of Durango and Coahuila, the principal stimulus was afforded by the proximity of rich cotton producing districts, and the consequent cheapness of the raw material, in others by the exceptionally high prices of foreign cotton goods due to great distance from a seaport.

The manufacturing industry of Orizaba owes its remarkable development not only to its ample water-power, and to the commanding situation of the town on the principal line of railway between the port of Vera Cruz and the capital, but also to the humidity of the atmosphere which, in the days before science had taught how this could be artificially produced, made it possible for far finer textures to be woven there than in the dry climate of the central plateau.

Finally, the erection of the Hercules Mill at Queretaro, one of the largest in the country, where no special natural advantages existed, was due entirely to the enterprising spirit of its founder, Don Cayetano Rubio, who at an immense cost drove a tunnel into a mountain and opened up a considerable stream of water, thus practically creating the water-power he needed for his factory.

In the early days of cotton manufacturing in Mexico, the only motive-power employed was water, if we except a very few small mills, which were worked by horses or mules; but as the industry grew in importance, and the capacity of the principal factories was gradually increased, it was found necessary in many cases to supplement the water-power by steam, especially during the dry season, when the rivers and streams become very much reduced in volume.

At the present time, as will be seen by reference to Annex E, there are 45 factories, averaging 133 horse-power each, which are moved exclusively by water, while those moved by steam and water combined number 34, with an average of 160 horse-power each.

Owing to the high price of fuel, steam alone is only used for motive-power in special cases, as, for instance, where the location of the factory is the principal consideration and where no other power is obtainable. There are altogether 28 factories moved by steam alone, with an average of 85 horse-power per factory, of which six are printing mills, three are knitting mills and the other 19 are spinning and weaving mills. Eight of these are situated in the city of Mexico or its suburbs, and the remainder are scattered throughout the Republic, but in every instance are to be found in the chief towns and not in the country districts.

The proportion of steam used in those factories where the motive-power is classified as "steam and water combined" may be roughly estimated at 25 per cent. of their total power as given in the returns, as during six months of the year the supply of water

is usually more than sufficient, while in the other six months it rarely falls, in the great majority of cases, to less than half of what is required to run the machinery.

According to this estimate the total water-power of the different factories would amount to 10,068 horse-power, and the total steam-power to 3,758 horse-power, making up the grand total of 13,826 horse-power.

The States where the largest amount of water-power is used are as follows:—Vera Cruz, 2,581 horse-power; Puebla, 1,195 horse-power; federal district of Mexico, 1,096 horse-power; Coahuila, 685 horse-power; and Queretaro, 563 horse-power.

Those where the largest amount of steam-power is used are:—Federal district of Mexico, 1,065 horse-power; State of Mexico, 320 horse-power; Coahuila, 278 horse-power; and Durango, 269 horse-power.

These figures do not include the steam required for sizing purposes, which may be estimated to average in each factory about 7 horse-power for each 100 looms, amounting in all to 956 horse-power, which, added to the 3,758 horse-power used for motive-power, makes a grand total of 4,714 horse-power of steam.

Fuel.

The amount of fuel consumed in the cotton manufacturing industry depends, of course, on whether the mills are run day and night or only during the day, and also on the class of fuel, whether coal or wood.

Assuming, as a basis for calculation, 300 working days of 15 hours each in the year, and 3 lbs. of good coal per horse-power per hour, the amount of coal required per annum would be 28,400 English tons (of 2,240 lbs.); or, if wood were used, about 56,600 cords of hard wood of 128 cubic feet each, estimating two cords as equivalent for steam-producing purposes to 1 ton of coal.

The price of fuel depends so much on locality that it is not easy to form even an approximate idea as to what the total cost under this head would amount to. Welsh coal, or American coal of similar quality, varies in price, at different points of the railway system of the central plateau, between 19 and 22 dol. per English ton (equivalent at the exchange ruling at the end of December, 1897, to from 38s. to 44s.), the variation depending on the rate of exchange and the distance by rail from a seaport. The cost of firewood is far more irregular. At some few places oak and mesquite wood can still be obtained as low as 3 dol. 50 c. per cord, while in the capital an inferior quality of wood is worth as high as 12 or even 14 dol. A fair average price for the majority of places outside the capital would be about 6 dol. 50 c. per cord.

Practically all the factories in the federal district use coal as fuel, consuming over 7,000 tons, so that it will certainly not be too much to estimate a total of at least 10,000 tons for the whole country, which, at the average price of 20 dol. 50 c., would amount to 205,000 dol. About 36,600 cords of wood would, therefore, be required to complete the total amount of fuel necessary, which at 6 dol. 50 c. per cord would amount to 237,900 dol., so that the total

expenditure under this head may be roughly estimated at 443,000 dol., or about 44,000%.

Although the central tableland of Mexico does not abound in Electricity. large permanent streams or rivers, owing to the scanty rainfall, which rarely exceeds 24 inches per annum, the relative scarcity of water is compensated in great measure as regards water-power by the broken nature of the country and the consequent frequent occurrence and height of its waterfalls.

The great advance made of recent years in the transmission of power to considerable distances by means of electricity makes it now possible to utilise falls of water, as motive-power for industrial purposes, in places where it would be impracticable from an economical standpoint to erect factories, and in many cases to make use of the same stream or river several times over at different elevations.

There is no reason, therefore, to anticipate that, for the present at any rate, the development of industrial enterprise will be in any way checked by the want of cheap motive-power.

It is gratifying to be able to state that the superiority of Machinery. English cotton machinery is now fully recognised in Mexico, and that for some years past all the new machinery erected in this country has been of English make.

The new spindle now being introduced into Mexico to the exclusion of all others, is the Rabbeth spindle, which has entirely superseded the Danforth, which was formerly in use here. Similarly, the English-made over-pick loom is now universally preferred to the American under-pick loom, which was at one time the favourite.

The old-fashioned water-wheels have been for the most part replaced by turbines, either of the Girard or Leffel type. A notable exception to this, however, is the great over-shot wheel, 36 feet in diameter, at the Hercules factory, at Queretaro, which was built in England, brought out in pieces and set up by an English engineer fifty years ago, and which still furnishes a large part of the motive-power of that establishment. The fact that it has never had to be stopped for other than the most trifling repairs bears eloquent testimony to the excellence of its construction, and the skill and solidity with which it was erected.

In factories where steam-power is employed, the large engines of 100 horse-power and upwards are usually English, but where not so much power is required, American high-pressure engines are preferred, on account of being cheaper. The form of boiler in most general use is the multi-tubular. These are generally of English make.

According to the returns for the year 1896 rather over 40 per cent. of the looms and 37 per cent. of the spindles in actual use were of new and improved make. The actual average production per loom in that year, taking old with new, was 10 pieces of cloth per week, while the production per spindle was rather more than 2 lbs. of yarn per week.

The number of operatives employed in the cotton manu- Labour.

facturing industry in Mexico during the years 1894-96 was as follows:—

	Year.						Number.
In 1894	..	..	..	..	..	..	18,656
1895	..	..	..	..	..	..	20,187
1896	..	..	..	..	..	..	20,994

I have no official data to show exactly what proportion of these totals represented men, and what women and children, but from private information I am inclined to believe that the proportions published in the statistical year book of the Ministry of Public Works, for the years 1889 and 1892, which showed 75 per cent. of men, 13 per cent. of women, and 12 per cent. of children, are fairly accurate as regards the present day.

In the State of Puebla very few women are employed.

Working
hours.

In estimating the amount of work done in a factory it is usual to assume 300 working days in the year, though in some districts, where religious festivals are very strictly observed, this number must be somewhat reduced.

In the majority of factories the working hours are from 6 a.m. to 9 p.m., with two intervals for meals, amounting together to an hour and a half.

The number of actual working hours in a year may, therefore, be set down roughly at about 4,000.

Wages.

The wages of factory hands are paid wherever possible by piece-work, the payment for which necessarily varies according to the class of machinery used. They are governed to some extent by the current rate of ordinary wages in different districts, being higher in the States bordering on the northern frontier and in the tropical districts on the Atlantic and Pacific coasts than in the central States.

In mills where the spindles and looms are of modern and improved make, the following may be taken to represent the average daily earnings of operatives in the principal departments:—

Cardroom hands average earnings per day of men, women and children, including foremen's wages, 50 c. (about 1s.).

Spinning room hands average 40 c. (about 10d.). The average in this case is somewhat lower than the other owing to the larger proportion of children employed.

Weavers earn 25 c. (6d.) per piece of 32 varas (29½ yards). Each weaver handles two looms, and is expected to turn out two pieces a day on each loom; hence his wages practically represent 1 dol. (2s.) per day.

The total expenditure for wages in 1896, not including cost of administration or skilled labour, may be roughly estimated as follows:—

						Amount.
						Dollars.
6,830 weavers (for 13,660 looms) at 1 dol. per day for						
300 days						2,049,000
14,164 other operatives at an average of 45 c. per day for						
300 days						1,912,140
Total						3,961,140
						£
Equivalent in sterling ..				(about)		396,000

There is abundant testimony in the ancient records of Mexico Raw material. to show that, prior to the Spanish Conquest, the cultivation of cotton was very extensively practised throughout the country, and some writers are even of opinion that the amount of the production at that time was equal to, if not greater than, that of the present day.

However this may be, there is no doubt that, owing to the eagerness of the conquerors to make fortunes quickly by mining enterprise, and the consequent diversion of a large proportion of the labour of the country from agricultural pursuits, the importance of the cotton industry soon fell off very much, and did not begin to revive again until after the Independence.

The districts in which the soil and climate are most favourable for raising cotton are situated in the Pacific and Gulf States, and in the north central part of the Republic. On the Pacific coast the cotton belt, which rarely exceeds 50 miles in width, extends without interruption from the latitude of Guaymas, in the State of Sonora, to the extreme southern limit of the State of Oaxaca, a distance of nearly 1,500 miles. The largest production in this zone is to be found in the States of Jalisco, Guerrero and Oaxaca, and the territory of Tepic. On the Gulf coast the belt extends from the Rio Grande, the northern boundary of the State of Tamaulipas, as far as the frontier of the State of Campeche, but it is only in the State of Vera Cruz that any considerable amount is raised. The most important district, however, is that known as the "Laguna," which lies along the valley of the Nazas river, partly in the state of Coahuila and partly in that of Durango. Although the rainfall is rather scanty in this part of Mexico the nature and depth of the soil are such as to retain moisture for a considerable length of time, so that it is estimated that one good rainy season will ensure fair crops for the two following years. Extensive works have recently been constructed for utilising the waters of the Nazas for irrigating this district, with the result that a far larger area is being brought under cultivation, and the success of the harvests is rendered less dependent on the accidents of the rainfall.

The more sandy and friable soil is usually preferred to that wherein clay predominates, as the latter is apt to form a hard crust when dry, which interferes with the growth of the plant.

As regards the quantity of clean cotton produced in Mexico, the only official statistics published on the subject are so obviously inaccurate that it would serve no useful purpose to quote them. It is evident, however, that, as no cotton is exported from Mexico, the home production, added to the amount of foreign cotton imported, cannot exceed, one year with another, the amount consumed in the factories. For the years 1894-96, at any rate, the correct amount of the consumption and importation is known, so that it is easy to deduce the quantity grown in Mexico, as follows:—

Year.				Consumption.	Foreign Cotton Imported.	Mexican Cotton.
				Lbs.	Lbs.	Lbs.
1894	..	..	..	41,608,862	30,739,294	10,869,568
1895	..	..	..	48,463,992	25,262,199	23,201,793
1896	..	..	..	53,273,397	28,786,986	24,486,411

It is scarcely necessary to remark that the crop of 1894 was a very bad one, as was also the case with 1893.

In default of more complete statistics for former years, I have given, in Annex F, a list of the quantities of American cotton exported from the United States to Mexico in each of the past 25 fiscal years, taken from the American Government returns, showing also the average price per lb. for each group of five years. I may mention that in 1879, the only year prior to 1894 for which fairly complete statistics of the cotton manufacturing industry in Mexico were collected, the amount of cotton consumed was set down at somewhat under 26,000,000 lbs., while the amount of the exports from the United States in the same year was nearly 10,000,000 lbs. It seems not improbable that the difference between these two figures (16,000,000 lbs.) represented a fair average crop at that time, which would tend to prove, if correct, that the development of the cotton-producing industry, up to quite recently, had not kept up with that of the manufacturing industry.

Mexican cotton has a somewhat coarser fibre and longer staple than American, so that the same amount of spindles working on it give a larger production in yarn. It is also not quite as clean as American cotton, the waste by dirt being estimated at about $7\frac{1}{2}$ per cent.

The price of Mexican cotton is governed by that of imported cotton, and is usually quoted at about 1 c. per lb. lower. The cotton from the Nazas district is sold at slightly higher figures than that from other parts of Mexico. The average prices of Mexican cotton during the years 1894-96, as published in the official lists of the Brokers' Exchange in the city of Mexico, were as follows:—

Year.						Per Lb.
						Cente.
1894	..	..	..	..	..	19
1895	..	..	..	..	..	18
1896	..	..	..	..	..	19½

The total cost of the cotton consumed in the factories in 1896, estimated at the mean price of 20 c. per lb. for Mexican and foreign cotton together, amounts to 10,654,679 dol., equivalent to about 1,065,000*l*.

The cotton manufacturing industry pays taxes to the Federal Taxation. Government, both directly and indirectly.

The direct contribution amounts to 5 per cent. on the value of the first hand sales of cotton yarn and cloth at the factories. This tax was first imposed at the beginning of 1894, in virtue of the law of November 17, 1893.

The indirect contribution consists of the import duty of 7 c. per kilo. (gross weight), leviable under the existing customs tariff on foreign raw cotton, with additional duties amounting altogether to 10 per cent. more, imposed subsequently.

The total amount paid by the industry to the Federal Government by way of taxation in each of the three calendar years 1894-96 was as follows:—

Year.						Direct Taxation.	Duty on Raw Cotton.	Total.
						Dollars.	Dollars.	Dollars.
1894	..	..	..	..	..	899,601	1,073,923	1,973,524
1895	..	..	..	..	..	1,211,745	882,572	2,094,317
1896	..	..	..	..	..	1,230,982	1,005,716	2,236,698

In the statistics of output supplied by the millowners to the Inland Revenue Department, some confusion exists as to the number of pieces of cloth actually manufactured, owing to the system of adding the results of weaving and printing operations into one total, whereby a piece woven in one factory and printed in another appears as two pieces. By personal reference to the owners of those establishments where cloth, woven in other factories and already returned as part of their output, has been introduced for printing, I have been able to ascertain its amount and to eliminate the duplicated pieces from the totals.

The "piece" of cotton cloth as manufactured in Mexico is usually estimated to contain, on an average, about 24 square yards (20 square metres) of material, the length being about 29 yards and the width averaging (except in the case of prints, where the width is smaller and the length of piece greater), from 29 to 30 inches; hence the yardage of the plain and coloured

goods produced in the past three years would be approximately as follows :—

Year.				Plain, Bleached, and Unbleached.	Coloured.	Total.
				Square yards.	Square yards.	Square yards.
1894	..	..	..	84,255,264	52,740,048	136,995,312
1895	..	..	..	96,982,606	56,829,552	153,812,248
1896	..	..	..	115,684,792	54,912,336	170,797,128

By far the greater part of the plain woven cloth manufactured is of heavy material and unbleached, and is used for clothing by the labouring classes, as well as for ordinary domestic purposes. The texture is generally coarse, under 33 threads of weft and warp to the $\frac{1}{2}$ centim. square. To give an idea of the weight, I may mention that the total amount of raw cotton made up into piece-goods shows an average weight per piece, whether plain or coloured, of 6 lbs. 5 ozs., so that, if it be borne in mind that about one-third of the total pieces are printing cloth, which is considerably lighter than the other, and that 10 per cent. weight of size is usually added, the weight of the finished piece of plain cloth will be found to average about 8 lbs.

As it is also among the poorer classes that the principal market is found for printed cottons, these are for the most part made of cheap quality and few colours.

Although considerable improvement is noticeable in the patterns of late years, the price at which such goods have to be sold does not admit of many novelties being introduced, a point which is, however, of less consequence than might be imagined, in view of the conservative tastes of the Indian population.

Very little has as yet been done in the manufacture of fancy goods, owing mainly to the necessity for employing a larger proportion of skilled labour for such articles, and to the considerable increase in cost which this would entail. Cheap coloured handkerchiefs and fancy drills are produced to some extent, and in one or two of the best equipped mills some sateens, flannelettes, and other similar materials have been recently turned out; but no attempt, so far as I can learn, has been ever made to manufacture the heavier class of goods, such as moleskin cords or velveteens, which would seem to be suitable for the climate of the central plateau, especially in winter.

As I have already mentioned in another part of this report, nearly all the yarn, not woven into cloth in the factories, is employed in the manufacture of a kind of shawl, known as a "rebozo," which is worn very generally throughout the country by the women of all classes. Some rather coarse sewing thread is also being made now, and is beginning to threaten the practical monopoly hitherto enjoyed in this country by English thread.

In Annex G will be found a list of the samples of Mexican

cotton goods which accompany this report, with their prices, the weight and measurement of each piece, and the duty which would be leviable on similar goods if imported from abroad.

Until 1892 the Mexican statistics of imports used to be published so irregularly that they are by themselves of little or no value as a means of estimating the effect which the development of the home industry has had on the importation of foreign cottons. Importation of foreign cottons.

Since 1873, the following are the only years for which these statistics were published by the Mexican Government :—

- I. The three fiscal years (ending June 30) of 1873, 1874, and 1875.
- II. The two half-years from July to December, 1884, and from July to December, 1885.
- III. The two fiscal years ended June 30, 1889, and June 30, 1890.
- IV. The five fiscal years from July 1, 1892, to June 30, 1897.

Fortunately, the statistics of the exports of cotton piece-goods from England and the United States to Mexico, as published respectively in the English and American returns, aggregating as they do over 90 per cent. of the total cotton piece-goods imported into Mexico, afford a means of making up to some extent for the deficiencies of the Mexican returns, though their utility is considerably lessened by the fact that, in the case of the English statistics, the imports are rendered by lineal yards and calendar years, while in the American they are given by square yards and fiscal years.

In Annex H I have given these figures in full for each of the past 25 years, so as to show the extent of the fluctuations in the imports from year to year, due to local causes ; but a more correct idea of the general increase or decrease in the trade will be obtained from the subsidiary table, in which the same figures are dealt with in averages for each group of five years.

It will be observed that the yardage of English cottons increased steadily up to the fourth group of years (from 1887 to 1891), but showed a falling-off in the last, although the years of 1895 and 1896 were nearly the largest of any. It may not be amiss to mention here that the returns for 1897, just received, show a falling-off of over 20 per cent. as compared with 1896. The yardage of American cottons, on the other hand, reached its highest point in the second group of years (from 1877 to 1881), and has declined steadily ever since.

In point of value per yard, there has been a very remarkable and steady decrease in both English and American goods, amounting in the 25 years to over 40 per cent.

It only remains to estimate, as nearly as possible, with the help of these figures and of the Mexican statistics already mentioned, the total yardage of cottons imported into this country in the period under consideration. In doing this I have used the

measurement of square metres, which is the unit on which duty is leviable in Mexico, but have adapted the figures to calendar years to allow of comparison being made with the English returns.

In the first three years, from 1873 to 1875, the average imports amounted to 40,700,000 square metres. From this date to the end of 1883 no Mexican statistics of imports were published at all, but, from the English and American statistics, some idea of their fluctuations may be obtained. The year 1876 being one of revolution, very few goods of any kind were imported, but from 1879 to 1882, when railway construction commenced on a large scale, a very considerable increase in the imports of cotton goods is observable, so that it is probable that the average imports in this period were, if anything, rather larger than in the preceding one. In the next five years, from 1884 to 1888, the imports fell off somewhat, averaging about 36,500,000 square metres. In 1889, 1890, and 1891 the renewed activity in railway construction caused a corresponding increase in the imports, but these being followed by two years of very bad harvests, coinciding with the collapse in the price of silver, the average imports in these five years did not exceed 40,200,000 square metres. Finally, in the last three years, 1894 to 1896, the average imports were 40,094,061 square metres.

The evenness of these figures, which show an average annual importation of nearly 40,000,000 square metres, with scarcely any variation throughout so long a period, is very remarkable, and proves that the natural increase of consumption, due to the growth of the population and the increase in the wealth of the country, has been wholly absorbed by home manufactures, and that foreign trade has not benefited by it.

Consumption
of cotton
cloth in
Mexico.

The only way of arriving at the amount of cotton cloth consumed in Mexico, the great bulk of which finds its market among the labouring classes, is by adding the quantity imported to the product of the Mexican factories; but here again the lack of statistics makes it impossible to do more than form a very rough estimate.

I have already mentioned that, prior to 1894, the only statistics published about the industry, which are sufficiently complete to be of any service for purposes of comparison, are those for the year 1879. Such considerable discrepancies, however, are observable in these returns in the figures relating to the output that it is impossible to accept them as accurate, and I have preferred to rely on an estimate based on the number of looms and the quantity of raw cotton consumed as being data in which the probability of error appears to be smallest.

Assuming that the capacity of the looms in 1879 was equal to the production of the old-fashioned looms in 1894, namely, about seven and a-half pieces per week, the 8,860 looms which are stated to have been then in operation, if working full time, would have turned out 3,455,000 pieces in the year. On the other hand the 17,950,000 lbs. of clean cotton, which according to these returns

was the amount made up into cloth, would only have been sufficient to make 2,840,000 pieces, if, as there is no reason to doubt, the average weight per piece were about 6 lbs. 5 ozs., the same as in the past three years. I think, therefore, that the output for 1879 is more likely to have been under than over the mean of these two estimates, and that it may be safely set down at about 3,000,000 pieces, or 60,000,000 square metres. This, if added to the 40,000,000 square metres at which I have estimated the average annual importation of foreign cotton goods about that time, would make a total consumption of about 100,000,000 square metres, or a consumption per head of 10·65 square metres based on the official estimate of the population for that year. In 1894 the total consumption of domestic and foreign cottons, as will be seen by reference to Annex I, was 140,000,000 square metres, while the population had reached nearly 12,380,000, showing that during these 15 years the increase in consumption had done little more than keep pace with the increase in population. In 1895, 1896, and 1897, however, the movement in the cotton trade was unusually large, and although this may in part be accounted for by the replacing of the stocks in hand which had been almost exhausted in the previous two or three years, there is no doubt that there was also a real increase of consumption per head of probably not less than 20 per cent. over normal times.

It is, of course, of the greatest importance to know to what extent, if any, this increase may be ascribed to causes of a permanent nature, as the future of the English cotton goods trade in Mexico depends on whether or no the rate of increase of the consuming power of the country is keeping pace with that of its manufacturing capacity.

Although a fair amount of cotton cloth is used for ordinary domestic purposes by the upper and middle classes of the community, by far the largest consumers are the labouring classes whose clothing is almost exclusively made of that material. In the case of the former it will be readily understood, in view of the cheapness of the article, that the consumption per head is not likely to be affected by considerations of cost or by fluctuations in the prosperity of the country, but represents a practically unvarying quantity. With the working classes, however, it is very different, as their wages are so small that an increase in the price of food immediately affects their ability to buy other commodities, so that in years of bad harvests the demand for cotton goods falls off very much, while in prosperous years it rises. After careful inquiry I cannot learn that any material improvement has taken place in the past 20 years in the condition of the poorer people such as to warrant the belief that they habitually consume more cotton cloth than they did formerly, as the price of wages has not risen, except in a few isolated localities and due to special circumstances, while the value of cloth in Mexican money has remained practically the same.

I am forced, therefore, to the conclusion that the very con-

siderable increase in consumption per head which is observable in the returns for the three years under consideration must be ascribed almost entirely to good harvests and cheap food; and that there are no grounds for thinking that it will be maintained in succeeding years except under similar conditions of prosperity, and still less that it will be surpassed.

The only increase then in the consumption of cotton goods which can be counted upon with any degree of certainty, is that due to the growth of the population, which is barely advancing at the rate of about 200,000 per annum, so that even if the unusually high consumption per head which has ruled during the past few years were accepted as normal, and the amount of increase were estimated on that basis, it would not reach 3,000,000 square metres a year.

**Industrial
companies.**

Owing to the increasing competition in the sale of domestic manufactures there has been a tendency in the past few years towards co-operation between mill-owners and merchants, with the result that several industrial companies have of late been formed, in which the leading dry-goods houses in Mexico are largely interested, to acquire and operate factories already established and to build new ones.

The principal of these are the following :—

1. The "Compañía Industrial de Orizaba," the shares of which are largely held by French merchants in the capital. This company owns the factories of Rio Blanco, Cerritos, and San Lorenzo, all situated in the suburbs of the town of Orizaba, State of Vera Cruz. They are all moved by water-power, and have together 1,738 looms, 61,092 spindles, and six printing machines. Their joint output in 1896 was 1,152,386 pieces, of which about 75 per cent. were printed or bleached. I understand that the output in 1897 was still greater. The Rio Blanco mill is not only the largest in the country, having over 1,000 looms, but is also the most complete in every respect, being furnished with the newest machinery, and able to turn out a considerable variety of goods, including fancy drills, Vichy cloth, and other similar articles.

2. The "Compañía Industrial Manufacturera" is controlled by a group of Spanish merchants. Its properties consist of the factories of Hercules, San Antonio, and La Purisima, situated in a village called La Cañada, about 2 miles from the town of Queretaro, and of San Fernando, formerly situated at Tlalpam in the federal district of Mexico, the machinery of which is now being removed to the Falls of Juanacatlan, near Guadalajara, to be set up there.

The power employed in these factories is for the most part water, and they have together 1,179 looms, 43,656 spindles, and three printing machines. Their joint output in 1896 was 306,617 pieces of plain goods and 359,862 pieces of prints.

3. The "Compañía Industrial de San Antonio Abad" owns the factories of San Antonio Abad, Barron, La Colmena, and Miraflores, the latter of which it acquired only a few months ago. All of these mills are situated within 20 miles of the capital. The first

is moved entirely by steam-power, the next two by steam and water combined, and the last by water alone. The output of these four factories in 1896, before Miraflores formed part of the company's property, was about 500,000 pieces, the principal part of which was printed goods. A quantity of cloth woven in other factories was also printed in the San Antonio Abad Mill.

In the absence of more detailed statistics than are at present obtainable about the cotton manufacturing industry in Mexico, and in view of the variety in weight and texture of the different goods turned out, it is impossible to form other than a very rough idea of the average cost of production of cloth per piece; indeed, my object in attempting to do so at all was rather to ascertain the proportion which the price of the raw material bears to the cost of its elaboration.

The following resúmen shows the principal heads of expenditure as I have estimated them in their respective places in this report:—

					Amount.
					Dollars.
Raw material	..	..	..	..	10,654,679
Labour	..	..	..	..	3,961,140
Fuel	..	..	..	..	443,000
Direct taxation	..	..	..	..	1,230,982
Total	..	..	..	..	16,289,801

but it must be borne in mind that the wages of high-class weavers, engineers, and other skilled labour are not included in this total, nor is the cost of the various ingredients used such as starch, colours, etc., nor the cost of administration. With the addition of these items the grand total of expenditure would probably amount to about 18,000,000 dol., 60 per cent. of which would be represented by the cost of the raw material.

From information I have gathered from various sources, I am inclined to believe that the actual cost of making a piece of unbleached cloth, of the average weight of 6 lbs. 5 ozs., not including the cost of administration and taxation, is about 2 dol. 10 c., while the cost of printing averages about 50 c. a piece. If these prices be applied to the number of pieces of plain and coloured goods manufactured in 1896, as given in Annex B, the result will be found to tally fairly well with the preceding estimate of total expenditure.

It is generally supposed that the profits of the cotton industry in Mexico range from 20 to 30 per cent. on the actual capital invested, and sometimes even higher, but as the great majority of the factories are the property of individuals, who not unnaturally do not wish publicity to be given to their private affairs, the only certain data obtainable are those published by the industrial companies, which, though not very ample, are sufficient to prove the lucrative nature of the business.

The only one of the three principal companies which has published a balance-sheet for three consecutive years is that of San Antonio Abad, the results of which are as follows :—

Year.				Capital.	Amount Paid in Dividends.	Amount Placed to Reserve Fund.
				Dollars.	Dollars.	Dollars.
1894	..	..	..	1,000,000	170,000	20,347
1895	..	..	..	1,000,000	200,000	57,904
1896	..	..	..	1,700,000	255,000	32,061

In 1896 the factories of Barron and La Colmena were incorporated into the company, which accounts for the increase of its capital in that year.

Neither the *Compañía Industrial Manufacturera* nor the *Compañía Industrial de Orizaba* have published any balance-sheets, but it is known that the original capital of the latter, which may be taken to represent the real amount invested, was 3,000,000 dol., and that on its re-organisation last year the shareholders received 185 dol. of new stock for each 100 dol. they originally put in. A dividend at the rate of 17 per cent., equivalent to over 31 per cent. on the original capital, has been already paid, and I am assured that the next will be still higher.

Effect of the depreciation of silver on the industry.

Most people are of opinion that the recent development of the manufacturing industry in Mexico is attributable directly and almost entirely to the great fall in silver; but, although I have always maintained that the industry, as already established, would not be prejudiced, but would rather be benefited by cheap silver, I am satisfied that the extent of the benefit derived is not nearly as large as is generally supposed, while in so far as regards the erection of new factories, or the improvement of the machinery in old ones, the depreciation of the currency entails a positive loss. It must, moreover, be borne in mind that the benefit to the home industry, whatever it may be, is relative rather than positive, and consists in the fact that the ratio of increase in cost of imported cottons, consequent on a reduction in the value of the Mexican dollar, is greater than that of the domestic article, thus constituting an additional protection against foreign competition.

Under the heading of "Cost of Production," I have shown that the price of the raw cotton employed in the factories represents, under existing conditions of exchange, approximately 60 per cent. of the total cost of the finished material, the remaining 40 per cent. being for labour, taxation, administration and other expenses, all of which, with the exception of a part of the fuel, a cost so small as not to affect the calculation, are payable in Mexico and in Mexican money. Although only about half the cotton consumed is imported from abroad (representing therefore in its greater part a gold cost) the market price of Mexican cotton is determined by that of the foreign article, so that the result to the manufacturers is the same as if it were all imported. Finally, three-fourths of

the cost of imported cotton represents its selling price in gold on the American frontier, the remaining one-fourth which is payable in Mexican money being for freight and import duty ; in the case of the domestic article the latter amount would correspond to the protection afforded by the Government to the Mexican cotton grower.

It follows, therefore, that 55 per cent. of the total expenditure of the factories is payable in Mexican silver dollars and is subject to no fluctuations, while the other 45 per cent., if not payable all in gold, is at any rate based on the gold value of foreign cotton, and represents a varying quantity in Mexican money according to the rate of exchange. The extent of this variation, in so far as it affects the total cost of manufacture, will be seen by the following table, in which I compare the actual silver expenditure in 1896 with what would have been required to produce the same amount of goods had the Mexican dollar been worth 4s. instead of 2s. :—

	Silver Cost.	
	Exchange at 2s. to the Dollar.	Exchange at 4s. to the Dollar.
First cost of raw cotton, 3,995,504 dol. gold ; 45 per cent.	Dollars. 7,991,009	Dollars. 3,995,504
Freight and duty on raw cotton, 15 per cent.	2,663,670	2,663,670
Cost of manufacture, 40 per cent. ..	7,345,321	7,345,321
Total	18,000,000	14,004,495

In the case of imported cottons it may be roughly estimated that on an invoice worth 100*l.*, the duties and expenses in Mexico will amount to about 500 dol. in silver ; hence any variation in exchange from the nominal par value of the dollar affects one-half of the total cost.

The fall, therefore, in the exchange value of the Mexican dollar from 4s. to 2s. causes an increase of 50 per cent. in the cost of foreign cottons and of 28 per cent. in that of Mexican cottons, the difference between the two being the measure of the benefit in increased protection accruing to the home industry from the depreciation of silver.

On the other hand, the erection of new factories under such conditions entails a very much larger outlay than before, as all the machinery has to be brought from abroad and paid for in gold.

I am, then, of opinion that the depreciation of silver has had very little to do with the recent rapid development of the manufacturing industry, and that this must rather be ascribed to the accumulation of capital, due to the growing prosperity of the country, and to the necessity of finding a safe and profitable field for its investment.

Summary.

The data contained in the foregoing report, though not so complete as I could have wished, will, I think, suffice to show that the conditions under which cotton goods are manufactured in Mexico are so favourable, that, even with a smaller degree of protection than they at present enjoy, it would be very hard if not impossible for English cottons to compete with them. The price of the raw material, except for the import duty which is not quite 1*d*. per lb., is practically the same as in England; although fuel is dear the gross expenditure under this head is not large, owing to the extensive use of water for motive-power; taxation is light; and, finally, labour, which though not of a high order is good enough for the manufacture of the class of goods for which there is the largest demand in Mexico, is extremely cheap. Under these circumstances it is only because the output of the Mexican factories has never yet been sufficient to supply the local demand, that it has been possible to continue the importation of low grade English piece-goods into this market; but there are strong grounds for believing that this state of things will not last long.

I have already shown that the normal increase of consumption of cotton piece-goods does not exceed 3,000,000 square metres, or 150,000 pieces per annum.

As against this, the increase of manufacturing capacity in 1897 over that of 1896 was about 500 looms, representing a minimum output of 300,000 pieces, while the new factories which are now in course of erection and will be in working before the end of 1898 will have 1,200 new looms, giving an output of nearly 750,000 pieces. At this rate, therefore, it cannot be long before the Mexican factories will be in a position to produce all the plain and coloured cotton goods of ordinary qualities required for home consumption.

It is useless to attempt to disguise the fact that this will be a severe blow to English trade, as more than half the value of the English cotton goods exported to Mexico consists of cheap cloth, which must eventually be excluded from this market. English manufacturers, however, should bear in mind that the capacity of the ordinary Mexican operative is limited, and that, in order to produce goods of superior fineness or of a variety of textures, skilled labour, usually foreign, has to be employed, which while often unsatisfactory is always expensive and adds very materially to the cost of production. In such materials, then, a field as yet but little explored is open to British enterprise, and if merchants, instead of being content merely to supply goods for which there is already a demand, were to exert themselves to introduce new articles direct to the consumers, and especially those of the poorer classes, it might well happen that the resulting trade would prove far more important than that at present existing.

Annex A.—TABLE showing the Proportion which the Value of the English Cotton Goods Imported into Mexico bears to the Value of the Total English Imports into that Country during the past 25 Years.

Groups of Five Years.	Average Imports of Cotton Goods per Year.			Average Total Imports per Year.	Proportion of Cotton Goods to Total Imports.
	Cotton Goods by the Yard.	Cotton Goods at Value.	Total Cotton Goods.		
1872-76	£ 476,237	£ 38,287	£ 514,524	£ 909,790	56.55
1877-81	477,231	62,206	539,437	1,054,967	50.94
1882-86	451,312	89,436	540,748	1,225,666	44.12
1887-91	418,558	132,095	550,653	1,495,885	37.47
1892-96	369,725	190,847	560,572	1,311,470	41.78

Annex B.—RETURN showing the Number of Cotton Factories in Working in the Republic of Mexico in the Calendar Years 1894, 1895 and 1896, with particulars of their Machinery, Output, Number of Operatives, &c.

		1894.	1895.	1896.
Number of factories	...	98	102	107
Amount of motive-power	Horse-power	13,161	13,241	13,828
Number of looms	...	12,280	12,711	13,680
„ spindles	...	409,872	425,580	448,156
„ printing machines... ..	...	29	24	24
„ operatives employed	...	18,656	20,187	20,994
Raw cotton consumed	Lbs.	41,608,862	48,463,992	53,273,397
Pieces of cotton cloth woven	...	5,708,138	6,492,117	7,116,547
„ „ printed	...	2,197,502	2,367,898	2,230,014
Pounds of yarn produced	Lbs.	2,147,353	3,757,829	3,858,029
		Dollars.	Dollars.	Dollars.
Direct taxation (Federal)	...	899,601	1,211,745	1,230,982

Annex C.—TABLE showing the Import Duties on Plain Woven Goods and Raw Cotton under the different Mexican Tariffs from 1837 to the present day.

Tariff.	Per Square Metre.				Per Kilogram.
	Bleached and Unbleached Goods.		Coloured Goods.		
	Coarse Texture.	Fine Texture.	Coarse Texture.	Fine Texture.	
March 11, 1837	..	Cents. 17½	Introduction prohibited	Cents. 17½	Introduction prohibited
April 30, 1843	..	{ 14* 17½† }	"	12½	"
September 26, 1843	..	21	"	18	"
October 4, 1845	..	21	Cents. 14	21	"
November 24, 1849	..	12½	8½ ₁₆	12½	"
June 1, 1853	..	8½ ₁₆	9	9	Cents. 6½
January 21, 1856	..	4½ ₁₆	7	7	3½
January 1, 1872	..	9	14	14	7
November 8, 1880	..	16½ ₁₆	14½ ₁₆	14½ ₁₆	7
January 24, 1885	..	11	15	15	8
March 1, 1887	..	9	12	12	8
June 12, 1891	..	9	12	15	8
Decrees modifying certain articles of the tariff of 1891, dated October 12, 1892, and February 22, 1893...	..	10	10	15	7

* Bleached.

† Unbleached.

NOTE A.—The above classification of cotton piece-goods into coarse and fine grades is based on there being less or more than a certain number of threads of warp and wool in a square of given size of the material. The standard has varied somewhat in the different tariffs under consideration. In the case of bleached and unbleached goods, in all the tariffs from 1837 to 1863 inclusive, it was 30 threads to the quarter inch square. In those of 1866, 1872 and 1883 the duties were not determined at all by the fineness of the material. In the tariff of 1890 the standard was 22 threads to the half centimetre square and in the subsequent ones it was 30 threads to the half centimetre square. In the case of coloured goods, in the tariffs of 1837, 1842 and 1843, the standard was 26 threads to the quarter inch square; in 1846 and 1849 it was 28 threads to the quarter inch square; in 1853, 1856, 1872 and 1883 the duties were not determined by fineness. In 1890, 1887 and 1891 the standard was 30 threads to the half centimetre square, and in 1892 it was 40 threads to the half centimetre square.

NOTE B.—Prior to 1872, when the metrical system came into official use in Mexico, the duties on cotton piece-goods were leviable per square vara containing 1,000 square English inches. To admit of comparison being readily made with the duties of later years, I have converted these rates into the proportional amount per square metre.

NOTE C.—Similarly in the case of raw cotton, the duties under the tariffs of 1833 and 1844, which were imposed per quintal of 100 pounds have been set down at the proportionate rate per kilogram.

Annex D.—RETURN showing the Importance of the Cotton Manufacturing Industry in each of the different States of the Republic in the Year 1896.

MEXICO.

25

Name of State.	Corresponding Number on Chart.†	Number of Factories.				Aggregate Number of Spindles.	Raw Cotton Consumed.	Population.*
		1st Class.	2nd Class.	3rd Class.	Total.			
NORTHERN STATES.								
Sonora ..	II	..	..	1	1	1,874	366,498	191,281
Chihuahua ..	III	..	..	2	2	2,100	137,750	266,831
Coahuila ..	IV	1	..	6	7	30,866	2,970,124	235,638
Nuevo Leon ..	V	..	1	2	3	13,844	944,864	309,252
Total ..	..	1	1	11	13	48,684	4,419,164	1,003,002
PACIFIC STATES.								
Lower California ..	I	..	No factories			..	..	42,245
Sinaloa ..	X	..	..	2	3	4,752	640,114	258,845
Tepic ..	XI	..	2	1	3	11,960	2,223,069	148,776
Jalisco ..	XII	..	2	3	5	22,281	2,467,953	1,107,863
Colima ..	XXIV	..	..	2	2	3,016	382,837	55,677
Michoacan ..	XXIII	..	..	5	5	12,684	1,170,300	889,795
Guerrero ..	XXV	..	..	2	2	3,318	676,013	417,621
Oaxaca ..	XXVI	..	3	..	3	18,700	1,733,292	882,529
Chiapas ..	XVII	..	..	1	1	1,500	148,426	316,120
Total ..	..	..	7	17	24	78,191	9,442,004	4,118,471

* Population according to the census of October, 1896.

† Sent to Manchester Chamber of Commerce.

RETURN showing the Importance of the Cotton Manufacturing Industry in each of the different States of the Republic in the Year 1896—continued.

Name of State.	Corresponding Number on Chart.	Number of Factories.			Aggregate Number of Spindles.	Raw Cotton Consumed.	Population.*
		1st Class.	2nd Class.	3rd Class.			
GULF STATES.							
Tamaulipas	VI		No factories	5	85,885	9,067,137	208,102
Vera Cruz	XVII	3	1		..	..	855,975
Tabasco	XXVIII		No factories		..	..	134,794
Campeche	XXIX		No factories		..	..	88,121
Yucatan	XXX		No factories		..	..	298,039
Total	..	3	1	5	85,885	9,067,137	1,585,031
CENTRAL STATES.							
Durango	IX	..	No factories	8	14,660	2,312,833	294,366
Zacatecas	VIII	..	..	1	4,640	564,206	452,720
S. Luis Potosi	VII	..	..		..	..	570,814
Aguaascalientes	XIII	..	No factories		..	..	103,645
Guajuato	XIV	..	..	4	8,964	3,453,789	1,047,238
Queretaro	XV	1	1	2	25,532	3,031,357	227,233
Hidalgo	XVI	..	..	2	5,863	413,653	548,089
Mexico	XXII	1	1	4	28,956	3,977,762	337,368
Federal district	XX	3	2	8	65,938	7,453,328	484,608
Morelos	XXI	..	No factories		..	..	159,800
Tlaxcala	XIX	..	2	4	23,732	2,733,350	166,808
Puebla	XVIII	..	4	13	57,106	6,344,814	979,723
Total	..	5	10	46	285,396	30,345,092	5,872,857

* Population according to the census of October, 1896.

RETURN showing the Importance of the Cotton Manufacturing Industry in each of the different States of the Republic in the Year 1896—continued.

RESUMEN.

Name of State.	Number of Factories.			Aggregate Number of Spindles.	Raw Cotton Consumed.	Population.*
	1st Class.	2nd Class.	3rd Class.			
Northern States	1	1	11	48,684	4,419,164	1,003,002
Pacific States	..	7	17	78,191	9,442,004	4,118,471
Gulf States	..	1	5	85,885	9,067,137	1,585,031
Central States	..	10	46	235,396	30,345,092	5,872,357
Total	9	19	79	448,156	53,273,397	12,578,861

* Population according to the census of October, 1895.

Annex E.—RETURN showing the Amount and Class of Motive-power Employed in the Cotton Manufacturing Industry in the Year 1896 arranged according to States.

Name of State.	Water-power.		Water and Steam Combined.		Steam-power.		Total Power.	
	Number of Mills.	Horse-power.	Number of Mills.	Horse-power.	Number of Mills.	Horse-power.	Number of Mills.	Horse-power.
Chiapas	..	..	..	..	1	100	1	100
Chihuahua	..	50	1	23	..	..	2	73
Coahuila	..	333	2	470	1	160	7	963
Colima..	..	60	1	60	..	..	2	120
Durango	..	180	3	267	2	195	8	672
Federal district	..	..	6	1,461	7	698	13	2,159
Guanajuato	..	..	2	120	2	190	4	310
Guerrero	..	152	..	..	..	..	2	152
Hidalgo	..	..	1	250	1	24	2	274
Jalisco..	..	135	3	420	..	..	5	555
Mexico..	..	298	1	120	3	220	6	708
Michoacan	..	195	..	..	3	180	5	375
Nuevo Leon	..	190	1	254	1	75	3	519
Oaxaca	..	294	1	155	..	..	3	449
Puebla..	10	950	5	327	2	186	17	1,413
Queretaro	..	40	2	697	1	40	4	777
S. Luis Potosi	..	..	1	115	..	..	1	115
Sinaloa	..	..	1	143	2	140	3	288
Sonora..	..	..	1	82	..	..	1	82
Tepic ..	1	170	1	264	..	..	3	474
Tlaxcala	4	382	1	180	1	180	6	672
Vera Cruz	9	2,681	..	..	..	..	9	2,681
Total	45	5,990	34	5,438	23	2,398	107	13,826

Annex F.—QUANTITY and Value in Sterling of Raw Cotton
Exported from the United States to Mexico in the following
Years, taken from the American Official Returns.

Fiscal Year ending June 30—					Quantity.	Value.
					Lbs.	£
1872	..	..	..	..	957,209	25,637
1873	..	..	..	..	550,639	14,870
1874	..	..	..	..	2,289,561	64,501
1875	..	..	..	..	1,305,276	36,837
1876	..	..	..	..	6,972,575	178,115
1877	..	..	..	..	3,969,812	92,580
1878	..	..	..	..	3,422,162	71,442
1879	..	..	..	..	9,898,129	182,517
1880	..	..	..	..	9,881,543	235,213
1881	..	..	..	..	13,386,186	298,820
1882	..	..	..	..	12,537,560	289,504
1883	..	..	..	..	20,577,771	443,452
1884	..	..	..	..	11,184,207	239,079
1885	..	..	..	..	5,877,000	122,650
1886	..	..	..	..	10,517,415	203,152
1887	..	..	..	..	5,975,330	114,658
1888	..	..	..	..	5,707,174	113,238
1889	..	..	..	..	16,901,267	321,479
1890	..	..	..	..	13,047,474	243,561
1891	..	..	..	..	12,841,122	256,394
1892	..	..	..	..	22,117,381	368,900
1893	..	..	..	..	20,905,980	379,892
1894	..	..	..	..	17,582,418	278,367
1895	..	..	..	..	37,976,422	470,460
1896	..	..	..	..	19,408,420	328,637

RESUMEN showing Average Quantity of Cotton Exported in each
Group of Five Years.

Years.					Average Exportation.	Average Price per lb.
					Lbs.	d.
1872-76	..	..	..	..	2,415,052	6.36
1877-81	..	..	..	..	8,111,566	5.21
1882-86	..	..	..	..	12,138,791	5.13
1887-91	..	..	..	..	10,891,473	4.62
1892-96	..	..	..	..	23,598,124	3.72

Annex G.—LIST of Samples of Mexican-made Cotton Piece-Goods sent with this Report.*

Number of Sample.	Width of Material.	Number of Linear Yards in Piece.	Weight of Piece.	Wholesale Price of Piece in English Money.	Number of Square Metres in Piece.	Import Duty Leviable on similar Material.	
						Per Square Metre in Mexican Money.	Per Piece in English Money.
	Inches.		Lbs. ozs.	s. d.		Cents.	s. d.
UNBLEACHED.							
1	30½	29½	4 13	5 6	21	7	2 11
2	29	29	5 8	6 0	19½	7	2 9
3	30	29	7 11	7 6	20½	7	2 10
4	31½	29	7 11	7 6	21½	7	3 0
5	30	29	8 13	7 9	20½	7	2 10
6	31	29	8 13	7 9	21	7	2 11
7	34	29	11 0	9 0	23½	7	3 3
8	64	29½	24 4	20 6	43½	7	6 6
BLEACHED.							
9	24½	43½	...	8 6	25	7	4 4
10	31	43½	...	12 6	31½	10	4 5
11	35	42½	...	16 0	35½	10	7 1
PRINTS.							
12	24	29½	...	7 0	16½	10	3 3
13	24	38½	...	8 9	21½	10	4 3
14	29	43½	...	14 9	29½	10	5 1
LININGS.							
15	24½	38½	...	11 2	21½	10	4 4
VICRY CLOTH.							
16	27½	38½	...	17 6	24½	10	4 10
DRILLS.							
17	24½	38½	...	21 8	21½	17	7 5
18	23½	38½	...	22 4	20½	17	7 6
19	23½	38½	...	25 2	20½	17	7 6

* Sent to Manchester Chamber of Commerce, and thence to Association of Chambers of Commerce.

Annex H.—YARDAGE and Value of Cotton Piece-goods Exported from Great Britain and the United States to Mexico in the past 25 Years, compiled from the British and American Returns.

Calendar Year.	English Exports.		American Exports.	
	Quantity.	Value.	Quantity.	Value.
	Linear yards.	£	Square yards.	£
1872	19,236,000	344,382	1,915,041	48,185
1873	37,101,000	666,395	1,769,077	44,868
1874	37,703,000	591,038	1,363,915	31,673
1875	34,516,000	586,307	1,589,852	33,466
1876	15,872,000	243,072	3,354,261	62,573
1877	41,244,000	572,204	12,132,306	199,929
1878	24,441,000	350,783	15,830,204	243,004
1879	23,246,000	313,830	11,549,749	159,092
1880	35,008,000	495,216	9,210,398	145,166
1881	52,082,000	654,122	10,531,983	165,004
1882	56,423,000	741,019	10,584,486	164,627
1883	39,036,000	485,968	9,633,414	146,652
1884	30,470,000	362,690	9,527,885	131,590
1885	26,777,000	306,951	9,501,341	117,074
1886	32,312,000	359,932	15,408,324	181,700
1887	35,444,000	380,450	12,346,038	141,978
1888	39,792,000	416,077	16,096,775	178,386
1889	43,790,000	441,647	9,580,659	120,116
1890	39,789,000	429,583	7,483,012	93,751
1891	38,788,000	426,035	7,157,052	88,866
1892	30,634,000	323,135	8,319,481	98,416
1893	28,796,000	309,653	4,245,904	58,379
1894	29,741,000	292,135	4,552,868	61,818
1895	51,479,100	461,654	6,437,568	77,908
1896	50,138,900	462,046	7,889,198	96,873

SUMMARY.

Groups of Five Calendar Years.	English Exports.		American Exports.	
	Average Exportation.	Average Price per Linear Yard.	Average Exportation.	Average Price per Square Yard.
	Linear yards.	d.	Square yards.	d.
1872-76.. ..	28,885,000	3·95	1,996,429	5·29
1877-81.. ..	35,204,000	3·25	11,850,928	3·70
1882-86.. ..	37,004,000	2·92	10,932,090	3·22
1887-91.. ..	39,520,000	2·54	10,532,707	2·84
1892-96.. ..	38,157,800	2·33	6,289,004	3·02

Annex I.—RETURN showing the Quantity of Cotton Cloth Manufactured in Mexico and Imported from Abroad, and its relation to the Population, in the following Years.

Year.	Domestic Cottons.	Imported Cottons.	Total.	Population.	Proportion per Head of Population.
	Square metres.	Square metres.	Square metres.		Sq. metres.
1879	60,000,000*	40,000,000*	100,000,000	9,384,000§	10·65
1894	114,162,700	26,441,151	140,603,851	12,378,000†	11·35
1895	128,843,500	44,161,028	174,004,528	12,578,961‡	13·83
1896	142,330,900	49,680,008	192,010,908	12,778,000†	15·02
1897	148,000,000†	38,000,000‡	186,000,000	12,978,000†	14·33

* Estimate.

† Estimate based on the output of the previous year with the produce of 500 new looms added.

‡ Estimate based on the official returns of imports during 10 months of 1897.

§ Official estimate of the Minister of Public Works.

¶ Census taken October 20, 1895.

|| Estimate based on an average increase of population of 200,000 per annum.

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DIPLOMATIC AND CONSULAR REPORTS.

RUSSIA.

REPORT ON THE
GOVERNMENT SPIRIT MONOPOLY
IN RUSSIA.

*Presented to both Houses of Parliament by Command of Her Majesty,
JUNE, 1898.*

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1898.

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Report on the Government Spirit Monopoly in Russia by Mr. Carnegie, Second Secretary to Her Majesty's Embassy at St. Petersburg.

(Received at Foreign Office, June 6, 1898.)

For the last 200 years the production and sale of spirituous liquors in Russia have been the subjects of repeated legislation. In dealing with this question two objects have been kept in view throughout; firstly, to obtain for the benefit of the State the largest possible amount of revenue from this trade; and secondly, to diminish drunkenness. These two objects must be necessarily somewhat antagonistic, and, until lately, it cannot be denied that more attention has been directed to the former than to the latter.

The drink question in Russia.

Before describing the character and relating the results of the recently instituted Government spirit monopoly, it will not be out of place to give a brief account of some of the systems which have preceded it and which have led to its present adoption.

In 1819 a State monopoly of the wholesale trade in spirituous liquors was instituted, which caused a certain diminution in their consumption. In consequence, there was a considerable fall in the price of corn, and this, in addition to the agricultural distress which prevailed at that time, led the landed proprietors, who had then more influence than they have at present, to agitate against the law which was accordingly repealed in 1826, and the farming system, which had preceded the monopoly, again came into force and so remained until 1862.

Previous legislation. Monopoly of the wholesale spirit trade.

The farming system.

Under this system the State granted the exclusive right of wholesale or retail traffic in spirits in each town, district, or province to the highest bidder. The whole of the spirits produced was under the control of the fiscal authorities who supplied it to the farming companies. These latter bound themselves to purchase, at a very high figure, a certain quantity of spirits, that quantity being based on the average consumption of the locality for the previous years. Any spirits supplied to the company beyond the amount agreed upon were sold to them at half or even cost price. A farming company, therefore, found it absolutely necessary, in order to exist, that the whole of the spirits which they had undertaken to buy was consumed in their district, for once they were able to begin selling spirits beyond the amount contracted for their profits became enormous, the difference between the

cost price and the price charged to the consumer amounting to 500 or 600 per cent.

It is necessary to go into a detailed account of the many evils and abuses which this system led to. The companies, however, attained to such a degree of power and influence that they have been justly described as being "a State within a State," and in consequence they were able totally to disregard all the laws and regulations which had been framed with a view to keeping them in check. They succeeded, moreover, in bringing the consumption of spirits in Russia to exactly double what it had been under the preceding system. Meanwhile, the State was not receiving a proportionate profit, for the companies, which became enormously rich, were calculated in the end to be making 60 per cent. on the Imperial revenues from the taxes on liquors, but in spite of these enormous profits they were constantly in arrears in the fulfilment of their obligations.

The excise
system.

The farming system, being condemned on all sides, was abolished in 1862, and the following year the excise system, still in force in about half of European Russia, was instituted, the principal features of which are as follows:—

The distillation of spirits is free to all, both to individuals and to companies. Distilleries may be erected of any size and capable of producing any quantity of spirits distilled from grain, potatoes, &c., according to choice. All that is required by law is, that their operations should be carried on openly, in order that they may be under the easy control of the authorities, and that the following duties should be paid:—

1. An annual duty on the instruments of production in proportion to their capacity.

2. A duty on the amount produced.

The distiller must make a declaration, which is verified by an excise officer as to the capacity of his apparatus, the quantity and quality of the materials he employs and the time occupied in distilling. The above details show the approximate amount of spirits which will be produced, and on which duty must be paid; the quantity is subsequently verified, and should there be an excess over the "legal minimum"—according to the apparatus employed—this excess is liable to a lighter duty or to none at all. The "minimum quantity" has at different times been increased, and the amount of the excess permitted to pay lighter duties consequently reduced. The above regulation is greatly to the advantage of the large distillers who, with their more perfect apparatus, are able to produce a greater excess over the "legal minimum" than their smaller agricultural competitors. The following figures show the result of this:—

Year.				Number of Distilleries.	Average Production per Distillery.	
1863-64	..	..	..	4,209	Vedros. 15,610	Gallons. 42,209
1887-88	..	..	..	1,681	46,000	124,384

No further duties are levied on spirits, the wholesale trade in which is unrestricted by any regulations. For the retail trade a license is necessary, for which all keepers of restaurants, "traktirs,"* and "kabaks"† have to pay an annual sum to the State, and in most cases to the local authorities as well.

The new system proved at once a great financial success, but although the consumption of spirits at first greatly increased it fell off considerably two years later. Hopes had been entertained that with a freer supply of better spirits a greater number of the population would accustom themselves to drinking in habitual moderation, but these hopes were quickly dispelled, for the "vodka" (corn brandy) did not improve in quality, and drunkenness increased. The educated classes felt no inclination to imbibe in the usual Russian fashion more than the customary glass of "vodka" before each meal because it had become cheaper, but the peasant considered that fact an excellent reason for drinking four times as much as he had done previously. In Russia the average consumption of spirits was and still remains very much lower than in many other countries, and if drunkenness is more apparent than elsewhere it is because the lower classes are unaccustomed to a regular usage of spirits, and are, therefore, more liable to succumb to the temptation to drink in excess when the occasion offers. This occasion was always forthcoming in the dram shop, the proprietor of which was usually willing to supply drink on credit, advance it on wages owing, or exchange it for agricultural produce, clothes, &c. Accordingly in 1885 the "kabak" was by law practically abolished. Spirits were allowed to be sold, for consumption on the premises, only in restaurants and "traktirs." Municipalities and rural communities were allowed to limit the number of "traktirs" in their districts, and the cost of licenses and the tax on spirits were raised. The diminution in the number of dram-shops and the increase in the tax on spirits (in 1892 two and a half times more than in 1863) had a marked effect on the revenues derived by the State from this source, for though the receipts showed an annual increase it was not in proportion to the growth of the population, nor was it as considerable as previous to the law of 1885. The question as to whether this loss to the Imperial revenues had been made up for by a corresponding diminution in the amount of drunkenness in the country was one which most people answered in the negative.

* A "traktir" is an establishment where food is supplied as well as drink.

† In the "kabak," or dram shop, "vodka" only is supplied.

First mention
of the
monopoly
system.

It was in the year 1885 that the first mention of the monopoly system, now gradually being introduced into the Empire, was made when the Emperor Alexander III instructed the Minister of Finance to draw up a report on the subject. The amount of and the annual increase in the revenues derived from the tax on liquors from 1886-90 was, however, so considerable that the Minister of Finance hesitated to abandon a successful fiscal system for one hitherto untried, but the famine of 1891 and its disastrous consequences no doubt led to an earlier adoption of the monopoly than would otherwise, perhaps, have been the case, and it was finally decided to introduce the system in January, 1895, into four provinces first, as an experiment.

Reasons for
the introduc-
tion of the
monopoly.

In the opinion of many persons one of the chief objections to the present reform is that it is impossible for the State to adequately perform the twofold duties now undertaken by it, namely to maintain the revenues from the tax on liquors at their previous level, and to endeavour to wean the masses from their fatal proclivity to inordinate drinking. Although one of the objects in introducing the new system is admittedly in order that the budget receipts from the tax on drinks should regain the elasticity which they have been lately losing under the excise, moral considerations have been put forward from the first as the real and principal reason for the reform. In one of the reports on the subject addressed by the Minister of Finance to the Emperor Alexander III, the proposed monopoly was described as "... a system by means of which the Ministry of Finance hopes to put an end to the grievous influence of the retailers of spirits on the moral and economic condition of the people." It has also been stated on more than one occasion that the reform is not intended to increase the yield of the fiscal revenues directly, that if there is any increase it will arise from the cessation of certain abuses and from the general improvement in the economic position of the people. Should there be, on the other hand, a decrease it will probably amount to such a comparatively insignificant sum which will be covered by a more than corresponding increase in other items of the budget. But other considerations have not been lost sight of by the Government. Under the excise the quality of spirits supplied to the lower classes was often of a most deleterious character, while none but those properly rectified are to be sold in the Government establishments. It was hoped also that a fresh impetus would be given to the small agricultural distillers who compete at so great a disadvantage with the large industrial distilleries. The former produce the raw unrectified spirit only which when sold to the retail dealer fetches but one-third of the price given for that duly rectified. In the districts where the monopoly was to be in operation the Government would buy unrectified spirits only, to be rectified in establishments specially constructed for the purpose. The small rural distiller would be, under these circumstances, on an equal footing with the industrial distiller as regards the price paid for his produce. It was also anticipated that an increase in the agricultural distilleries would

enable the farmers to keep more cattle, owing to the advantage and ease with which they are fed on the lees, &c., from the distillery. As the number of drink shops was to be greatly curtailed and the sale of spirits placed in the hands of responsible agents of the Government, no relapse into the old abuses was to be feared.

The above shortly sums up the principal reasons and considerations which led to the adoption of the monopoly system, the essential features and regulations of which are the following.

The monopoly is limited to the sale of spirituous liquors and is not extended to fermented beverages such as wine, beer, &c. The manufacture of spirits remain in the hands of private persons, and the distilleries are subject to the same regulations as under the excise. Principal features, &c., of the monopoly.

In principle, each province (or group of provinces) should produce as far as possible the amount of spirits necessary for the consumption of the district. But henceforth no distillery may produce in one year more than the greatest amount distilled by it in any one of the three years previous to the introduction of the monopoly in that region. New distilleries may not be erected nor old ones re-opened without the consent of the Ministers of Finance and of Agriculture.

The local administration of indirect taxation prepares a report respecting the sale of spirituous liquors in the district. By this report is determined the amount of spirits to be supplied for consumption, which has to receive the sanction of the Minister of Finance. Two-thirds of the spirits required are furnished by the local distilleries, the price of which is fixed each year by the Minister of Finance in accordance with the cost of the raw materials and the expenses of production. The remainder (one-third) of the spirits needed for the local supply is acquired by means of contracts, but should no tenders be made or should they be too high, the Minister of Finance buys the spirit through the ordinary commercial channels.

Spirits awaiting sale remain under the inspection of the Government agents. They may be transported upon the payment of excise duties to other districts where the trade is still free. The transport is supervised by the excise authorities.

All importation of spirits into the monopoly districts is forbidden, with the exception of a small quantity (about two pints), intended for the consumption of travellers.

Manufacturers of liquors, &c., must buy the spirit necessary for their productions from the Government at a price fixed by the Minister of Finance.

As in the interests of the public health no unrectified spirits will be sold, the Government makes itself responsible for their proper rectification. This will be effected either in private establishments under official inspection, or in those erected by the Government.

Government workshops are built where the spirits are put into barrels or bottled before being delivered to the retail dealers; these consist of :—

1. The shops and depôts of the Government.
2. "Traktirs," restaurants, and private establishments which sell on commission for the Government.

The Governor and Director of indirect taxation of the province settle the number of Government shops and the localities where they are to be opened. In these establishments no consumption on the premises is permitted. The spirits are sold in closed and sealed bottles, on which is a label stating the price, quantity, and alcoholic strength. The price of the bottles, which are of various sizes, is strictly proportional to the contents. No corkscrews are allowed in the shops, nor are the buyers allowed to open the bottles on the premises or while carrying them to their destination.

In the country, permission to keep "traktirs" must be obtained from the Governor and the Director of indirect taxation. The keepers of these "traktirs" may supply their customers with closed bottles only, the price of which they may not increase, but they receive a small commission (about $3\frac{1}{2}$ per cent.) from the Government on what they sell. This removes all possibility of a recurrence of the evils of the old system under which the "traktir" keeper's interest was to induce his customers to drink as much as possible—more than they could probably pay for without getting into debt. A special authorisation from the Minister of Finance is necessary for selling any other than Government spirits at Government prices in a country "traktir." Excepting in these establishments and in the Government shops it is impossible to procure any spirits legally in the rural districts.

In towns and at railway stations, keepers of restaurants and buffets may sell spirits either—

(a) As in the country, viz., at fixed prices marked on the bottles which are closed, but the contents may be consumed on the premises, or

(b) By the glass or in any way they choose. Spirits of any kind, native or foreign, may be sold.

This second mode (b) of sale is permitted to only a very few restaurants and buffets of the highest class, and the privilege is not likely to lead to any danger to the lower classes, the state of whose purses does not permit of their patronising establishments of this character.

There are also wine merchants and keepers of wine shops who are authorised to sell Government spirits (not for consumption on the premises) in closed bottles at the established prices. As they also supply wines, foreign spirits, &c., the sale of the Government spirits forms but a very small part of their business.

The cost of licenses for "traktirs" and restaurants is greatly reduced, and amounts to some 25 to 50 r. (about 2*l.* 10*s.* to 5*l.*); for first-class restaurants, &c., where spirits may be retailed by the glass to 100 up to 300 r. (10*l.* to 30*l.*).

It can be seen, therefore, that under this system the number of establishments in which it is to the interest of the owner to encourage drinking is strictly limited.

Heavy penalties are exacted for infringements of the above regulations, such as for shebeening, smuggling, adulterating the spirits, tampering with the Government seals and labels, demanding more than the legitimate price or allowing unauthorised consumption on the premises.

A special provision has been made for the sale of either raw or rectified spirits to chemists, and to those engaged in scientific work, &c., at a price to be determined by the Minister of Finance.

A small sum is given for the empty bottles, which must be returned by the consumer in an undamaged condition and with the labels intact. The latter regulation causes much discontent among the lower classes who find great difficulty in complying with it.

We may now turn to the important question of compensation, ^{Compensation.} for a reform of such a sweeping character as the present one must necessarily affect the interests of a vast number of persons.

The principal interests which are or may be injured by the monopoly are those of:—

(a.) Keepers of spirit shops (where consumption on the premises was not allowed) who have not found employment under the Government.

(b.) Keepers of restaurants, “traktirs,” &c., where spirits were sold by the glass.

(c.) Rural communities.

(d.) Zemstvos (provincial assemblies) and municipalities.

No compensation has been given to the individuals classed under (a) and (b). An extract on the subject from a semi-official publication may be quoted:—

“In Russia there can be no question of giving compensation to the evicted retailers of spirits. The license they were granted by which they were permitted to carry on their deplorable business has always been considered by the legislator, the administration, the public, and by themselves as a permission liable to be withdrawn without explanation or comment.”

It is, however, stated that the question of granting assistance in certain cases to the above-mentioned individuals is under consideration.

(c.) Rural communities, who by the monopoly have lost the income they obtained from the permissions they granted for keeping “traktirs,” &c., have received no compensation. Their case is also under consideration, and as they will now find it more difficult to pay their annual State taxes some reduction may be granted.

(d.) Zemstvos and municipalities receive compensation in the form of an annuity equal to the average annual sum obtained by them during the five years 1890–94 from their share in the license duties. This arrangement is only provisional, and probably some other form of local taxation will be found to indemnify them for what they have lost by the monopoly.

Certain pecuniary compensation is given in some cases to

Temperance
committees
and houses.

While criticising the monopoly, mention should be made of the tea shops which the Government are endeavouring to establish alongside of the new system, and for which certain sums of money have been granted. They are intended to take the place of the old dram shops, and to become harmless places of resort for the lower classes, where they can meet without any temptation to intemperance. Temperance committees have been also formed, presided over by the Governor of the province when in a provincial town, and by the Marshal of Nobility in a district town. The functions of these committees consist in endeavouring to prevent an inordinate consumption of vodka and to generally promote temperance. They are also authorised to establish tea-rooms and to make them as attractive as possible. It is stated that these attempts to combat drunkenness and to wean the people from the drink shops have as yet proved ineffectual, owing to the smallness of the sums devoted by the provincial authorities to the organisation and maintenance of the temperance establishments.

Extension of
the monopoly.

In July, 1896, the monopoly was introduced into nine more provinces, viz.: Bessarabia, Volynia, Ekaterinoslav, Kieff, Podolia, Poltava, Taurida, Kherson, and Tchernigoff, and in July of the following year, into seven more: Vilna, Vitebsk, Grodno, Kovno, Minsk, Mohilef, and Smolensk. No details have been published respecting the results of the system in the above-mentioned districts, but it is understood that they have not proved altogether satisfactory, especially as regards the first nine provinces.

On January 1, 1898, the monopoly was extended to Poland and to the provinces of Kharkoff, Novgorod, Olonetz, Pskof, and St. Petersburg. The monopoly is therefore in operation in about one half of European Russia. It had been intended to introduce the reform into Moscow and the surrounding provinces the year after next, but the date has been postponed to 1902, as the difficulties and expense which will be encountered at the outset in these populous districts have caused the Government to defer the introduction until more satisfactory pecuniary results, as is to be hoped, are reported from those parts where the system is in working.

Introduction
of monopoly
into St.
Petersburg.

In St. Petersburg the change has caused much discontent and has entailed on the Government very high initial expenses. That discontent should be felt is not surprising, as 10,000 persons are stated to have lost their employments without receiving compensation in any form. How sweeping the reform in this city has been the following figures will show.

Out of 937 wine and spirit shops 178 are now permitted to sell Government spirits, some others may continue their business, but are not authorised to sell spirits. The Government and private spirit shops now amount to 325, which number may be increased if necessary.

Out of the 650 "traktirs," 250 only have been relicensed, as have been also 15 first class restaurants, where spirits of any kind may be sold without restrictions as to price or quantity, and 66 others

There was some variety in the accounts sent; while some stated that drunkenness had greatly decreased, that there was a marked diminution in the number of persons in the hospitals suffering from diseases or accidents attributable to drink, and that on days following holidays and Sundays many more workmen were in a fit state to resume their occupations than had formerly been the case; others, on the other hand, alleged that drunkenness in the streets had greatly increased, and that owing to the impossibility of obtaining any food in the drink shops many persons took their drams on empty stomachs when going to or returning from work with disastrous results.

The reports were, however, on the whole satisfactory, and in 1896 the Minister of Finance determined to make a tour in the four provinces and in others where the monopoly has just been introduced, in order to personally inspect the working of the system and to judge of its results. After hearing the opinion of representatives of the local administration, and of all classes of society, the Minister stated in a circular, published after his visit, that he was convinced that the effects of the reform were in general satisfactory. These good effects were, however, he regretted to say, much weakened by the influence of the "traktirs" in which the proprietors, being able to sell spirits under the new regulations only, demanded a very high price for the food they supplied, and invented various other charges with a view of supplementing their diminished profits. The excise authorities were directed to exercise more discretion in granting licenses to new houses, and more care in their supervision over the old ones. The proprietor of a "traktir" was to be bound to give a written undertaking to observe all the rules laid down for such places, licenses for which were granted on the understanding that in the event of an infraction of the regulations they would be revoked. The attention of the authorities was also called to those establishments where spirituous liquors were sold in a disguised form, as well as to those where persons were allowed to introduce and to consume on the premises spirits which had been previously bought at the Government shops.

The comments in the Press on the monopoly have by no means been uniformly favourable. It is, however, most natural that a reform of such a drastic nature and of such far-reaching effects should have many opponents. In the first two years of the monopoly the Government realised some considerable profits in the four provinces, a fact which occasioned some hostile criticism. It was pointed out that if the Government had been able to realise a handsome net profit, amounting to 50 per cent. (?) on the capital employed, the sale of vodka in these provinces must have increased, and that therefore there was no ground for speaking of the sobering effects of the reform. For it is asked how comes it that a measure which was to be directed exclusively for the benefit of the population, as has been repeatedly declared, has proved an enterprise yielding so large a profit taken from that population and moreover at a raised rate of excise duty.

(1) 210,000 r. for the approximate loss on licenses which would have been issued by the Government, and

(2) 250,000 r. which must be allowed for the amortisation of the sums (about 5,000,000 r.) expended by the Government in the acquisition of real property and in preliminary expenses; this amortisation is to be effected in 20 years from the date of the introduction of the monopoly.

This leaves to the State a net profit of some 3,700,000 r.

In 1896 the sale of spirits produced 12,300,000 r., the expenses were 7,900,000 r., leaving a balance of 4,400,000 r.

When the same deductions have been made as in the previous year for loss on licenses and for amortisation, a net profit of 3,940,000 r. remains, 240,000 r. more than in the year before.

As already stated the monopoly was introduced into nine more provinces in July, 1896, but no reliable statistics are as yet procurable respecting them. It is said that the working expenses have proved much higher than had been anticipated, but that it is hoped that they may be reduced in the course of time.

General financial effect of the monopoly. The following are the receipts from the monopoly as published in the Budget :—

Year.						Amount.
						Million Roubles.
1895	..	..	..	..	..	11·4
1896	..	..	..	..	..	27·7
1897	..	..	..	..	..	52·4
Total	..	..	..	..	..	91·5

From the above amounts the deductions necessary to show the net profits cannot have been made.

The following sums have been assigned in the Budget for the organisation of the monopoly and for compensation :—

Year.						Amount.
						Million Roubles.
1895	..	..	..	..	..	19·4
1896	..	..	..	..	..	47·7
1897	..	..	..	..	..	69·9
1898	..	..	..	..	..	88·8
Total	..	..	..	..	..	225·8

In regarding this question from a financial point of view it is necessary to take into account the effect which the introduction of the monopoly has produced on the revenues of the State derived from the tax on liquors.

This produced in :—

Year.						Amount.
						Million Roubles.
1895	..	..	..	..	..	298·2
1896	..	..	..	..	..	294·2
1897	..	..	..	..	..	280·0

Thus in the last three years the receipts from this source have diminished by more than 18,000,000 r.

In 1887 the receipts from the tax on liquors amounted to 257,600,000 r., and in 1895 to 298,200,000 r., an increase of more than 40,000,000 in eight years. If an average is taken of the annual increase during this period it will be seen to amount to some 5,000,000 r. per annum. Therefore, an additional loss to the Government for the last three years of 15,000,000 r. may be estimated, making with the 18,000,000 r. mentioned above, a total loss of 33,000,000 r.

As has been seen the receipts (gross) from the monopoly, as published in the Budget, reach a total of 91,500,000 r. If in 1895 11,400,000 r. (gross) represented a net profit of 3,700,000 r., it may be roughly estimated that 91,500,000 r. represent a net profit of 29,600,000 r. Deducting this sum from the 33,000,000 r. already calculated to have been lost by the State, a deficit amounting to 3,400,000 r. results, an estimate which according to some accounts is exceedingly moderate.

It is, however, neither just nor advisable to criticise a reform of this nature before there has been time for its thorough organisation, for it is almost certain that the monopoly when once in working order throughout the country will increase the revenues of the State, and will act at the same time as a check on the intemperance which at present is unfortunately so prevalent among the uneducated classes of the Russian Empire.

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R U S S I A.

REPORT ON THE

WARSAW WOOL FAIR OF 1898.

*Presented to both Houses of Parliament by Command of Her Majesty,
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Report on the Warsaw Wool Fair of 1898

By MR. CONSUL-GENERAL MURRAY.

(Received at Foreign Office, July 1, 1898.)

Before giving a detailed account of the Warsaw Wool Fair of 1898, it is necessary to shortly review the general state of the wool market throughout the world since the fair of 1897, and also to state what occurred at the wool fairs held in the spring of 1898 in Germany, which latter especially exercise a considerable influence on the Warsaw market.

The chief feature of the wool market throughout the world was a universal rise in prices owing to the smaller production of wool during the past year. The yield of wool in Australia, for instance, which usually represents one quarter of the production of the whole world, which had been in 1896 1,586,000 bales was in 1897 only 1,396,000 bales, or 190,000 bales less than usual, instead of being slightly more as is to be expected each year in the ordinary course of improvement of production. The Argentine Republic produced, in 1897, 7 per cent. more wool than in 1896, but this increase could not cover the deficit in Australia, especially as the wool grown in the Argentine Republic is of inferior quality. From the outbreak of war between Spain and America the supply of American wool diminished, whilst, on the other hand, the demand increased, which led to a further rise in prices, as was seen at the London Wool Fair in May last.

At the end of 1897 and at the beginning of this year there was a strong demand for wool on the German market, so that German merchants tried to obtain wool from Poland, but they were not able to obtain any quantity as the stock of 1897 wool which still remained to be disposed of was at that time very small.

At the small fairs held at the beginning of June this year in various places in Silesia and Prussia there was very little wool put on the market at all, and at the big fairs at Thorn, Breslau, and Posen the quantity of wool was much less than last year, from which cause the tendency of the market was upward.

The demand was especially great for extra fine qualities, the price of which went up 15 to 20 marks per centner, in view of the very limited supply. Fine qualities also showed a rise in price. At some of the fairs medium qualities did not find buyers readily, whereas badly washed wool found buyers at good prices. This is to be accounted for by the fact that in some

places it is more advantageous to buy this wool and to wash it mechanically at the works than to buy well-washed wool at higher prices.

At the important fair of Kharkoff wool was brought to the market in large quantities, but the prices there also ruled very favourably for producers.

Taking all the above into consideration it was not difficult to foresee that the quantity of wool put on the market at the Warsaw Wool Fair of 1898 would not be great, but that prices would rule high, probably higher than last year, which was the most successful year for producers for a long time.

The fair was held this year on June 15, 16, 17 and 18, the fact of the last day being a Saturday having a considerable influence on the closing of transactions on that day, when all the remaining stock was cleared out with the exception of some 8,000 pounds, which were taken by Lodz manufacturers within the next three days, so that the unsold residue of wool brought to the fair may this year be accounted as nil.

As stated in my report last year on the Warsaw Wool Fair of 1897, a summary of which was published in the Board of Trade Journal for September, the market was very firm, especially for extra fine qualities, and only 9.5 per cent., or 6,273 pounds of the total quantity of wool brought to the fair of 1897 remained unsold. This was one of the reasons why the tendency of the market remained favourable to sellers throughout the whole year, another reason being that after that fair only small quantities of wool remained in the hands of middlemen, as manufacturers themselves had been practically the only buyers.

So small a quantity remaining to be disposed of and the demand for wool throughout the year being so strong, only a very small quantity of last year's wool, some 1,311 pounds, was still to be disposed of at the beginning of this year's fair, but if we take into consideration that this residue of last year's stock consisted entirely of inferior and badly-washed wool, and that the production of wool in the districts from which wool is brought to the fair had not diminished to any great extent, whilst the total quantity of wool put on the market was considerably less than last year, it was safe to say that considerable transactions between buyers and sheep-farmers must have taken place before the fair commenced. So it proved.

The following figures show the difference between the quantity put on the market in 1898 and 1897:—

				Quantity.	
				1898.	1897.
				Pounds.	Pounds.
Wool remaining from previous year ..	..			1,311	7,771
Supply of current year ..	..	..	..	56,589	62,852
Total amount to be disposed of ..	..			57,850	70,623

so that the total amount to be disposed of in 1898 was 12,773 pounds, or nearly one-fifth less than in 1897.

So large a decrease required a definite explanation, so the committee of the fair appointed a sub-committee to investigate the matter, who found that:—

(a) On some farms the amount of wool produced in 1898 had been less than in 1897, whilst on others sheep-farming had been given up altogether.

(b) Although in former years wool was frequently bought before the commencement of the fair, this was almost always done by middlemen, who bought the wool before the fair in the hope of being able to sell it at an enhanced price at the fair, so that the wool came to the fair after all, whereas manufacturers themselves were the buyers this year so that the wool was sent by the producers straight to the factories without being brought to the fair at all, a good deal of the wool so bought being sent to Germany where the supply of wool had run short.

Polish wool is, generally speaking, of excellent quality. Some few years ago, when in consequence of a change of fashion, the demand for cloth diminished and manufacturers either had a portion of the goods they had sent for sale returned unsold, or worse still, could not get payment for it, the demand for wool fell off, and consequently prices fell to such an extent that it no longer paid to produce the higher qualities of wool. It was proposed to abandon the production of such wool altogether, and to go in for producing an inferior quality which would cost less to produce and so would leave a margin for profit.

Fortunately, however, this ruinous idea was never generally carried into execution as the more level-headed amongst the wool producers understood that although it would be very easy to produce wool of an inferior quality, it would afterwards be very difficult, if not impossible, to again raise the standard.

It is stated that on Polish farms too much care is given to the sheep, and that the food given them is unnecessarily good, and, therefore, unnecessarily expensive. If this be a fact, a change would be of great importance as, could the sheep be kept at a lesser cost, it would not only make sheep-farming more profitable, but would also gradually produce a hardier race of sheep.

Each year buyers become more exacting as to the washing, sorting, and packing of the wool, and it is greatly to the credit of the Polish sheep-farmers that they give little opening for complaint, as all these operations are thoroughly well carried out and complaints from buyers are very seldom heard.

This is probably the reason why the Warsaw Wool Fair attracts so many foreign as well as local buyers. This year, in addition to buyers from the provinces, there were also numerous representatives of German and Austrian firms, and the Bialystok manufacturers, after a lapse of several years, again sent agents to the fair at which they bought up the inferior qualities of wool. Representatives of several French and English houses were expected, but they did not turn up.

Before going farther I should mention that the annual wool fair at Warsaw is held under Government superintendence, the regulations as to the conduct of the fair, and the wool sold thereat being very strict. The wool, before being brought to the fair, has to be examined, and a certificate signed by the head of the village or burgomaster has to be produced, to the effect that the wool is from sheep in good health, and that there were not any diseased sheep or cattle on the same pasture ground with these sheep at the time of shearing.

In connection with the fair there is a show of sheep, but this year the show was a failure, only 55 sheep being exhibited, as all the best sheep were being shown at the Agricultural Exhibition which was taking place at the same time at Warsaw. All the sheep shown at the fair were sold, however, realising from 40 to 80 r. (4*l.* to 8*l.*) a-piece.

No actual sales of wool took place before the official opening of the fair as was the case last year, but on the first day a considerable amount of wool changed hands, the prices asked and offered being based on the prices which prevailed abroad. There was an especially large demand for extra-fine qualities at first, but owing to the high prices buyers turned their attention to the next best quality, Fine I, which found ready buyers; wool of Fine II quality was also easily disposed of as soon as it was brought to the fair; the prices paid for the three above-mentioned qualities were considerably higher than in 1897.

The Bialystok manufacturers, who were not seen at the Warsaw fair for the last few years, came this year and bought considerable quantities of wool of middling qualities, or, to put it more exactly, of inferior qualities which it is usually very difficult to sell, and the prices of which have not been quoted for quite a number of years. Medium qualities were bought only on the third day, not because of an absence of buyers, however, but on account of the high prices demanded.

A characteristic of the Warsaw Wool Fair consists of the way in which prices are fixed; it might be expected that prices, being once fixed for wool of different qualities, would be generally adopted for the various transactions, but on the contrary the price paid in each separate transaction is generally based on the price which was obtained for the wool from that particular farm in the preceding year, to which is added or from which is deducted the average fall or rise of prices at the fair. The reason of this lies in the importance which is attached by manufacturers to buying wool of the same origin, and it has been frequently noticed that buyers deal year after year with the same producers. The absence of a standard according to which wool brought to the fair would have to be classified, and which would greatly facilitate transactions is a great defect in the arrangements, and ought most decidedly to be rectified. As things stand to-day, the origin of the wool is practically the only guarantee of its quality to the buyer.

At the beginning of the fair buyers were very exacting as to

the sorting and washing of the wool, these two factors having a great influence on the prices paid, but owing to the firm tendency of the market, and it becoming evident that the supply of wool was too small to meet the demand, buyers became less exacting, or, in other words, wool, which on account of defective washing or bad sorting, did not at first fetch the same price as wool without these defects, was sold subsequently at that very same price. Although, as will be seen from the following tables, prices apparently remained stationary the second day of the fair, as a matter of fact they went up continually, in finer qualities fetching towards the close of the fair the same price that was paid at the beginning of the fair for the best qualities, considerably higher than the price at first paid for inferior qualities.

The quantity of wool sold on each day of the fair was:—

	Quantity.	
	1898.	1897.
	Cwts.	Cwts.
Before the fair	..	1,333
On the first day of the fair ..	2,833	817
" second	8,700	8,200
" third	4,334	2,933
" fourth	1,333	8,633
Total	16,700	21,416
Remaining unsold	2,700	2,000

But as above stated, the remainder of the stock of 1898 has already been bought since the fair by Lodz manufacturers.

The following were the average prices paid during the fair for each quality of wool:—

	Prices in Shillings per Cwt.			
	1898.		1897.	
	From —	To —	From —	To —
	s. d.	s. d.	s. d.	s. d.
Extra fine	94 6	121 6	90 0	115 6
Fine I.	82 6	94 6	76 6	83 9
Fine II.	74 3	82 6	59 0	75 4
Medium.	64 6	72 9	41 6	64 9
Inferior	54 0	64 9	..	..

On a comparison of the prices paid in each year it will be seen that there was a general rise, so much so that except as regards the extra fine quality, the highest price paid last

year for each different quality was the lowest during this year's fair.

To sum up, it may be said that the Warsaw Wool Fair of 1898 was exceptionally favourable for wool-producers on account of the high prices, and that, in view of the fact that none of the wool of this year's fair will have to be put on the market in 1899, good hopes may be entertained of next year's fair, more especially if the present endeavours of Polish manufacturers and merchants to open up a new market for their goods in Siberia and Eastern Russia in general be successful.

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DIPLOMATIC AND CONSULAR REPORTS.

R U S S I A .

REPORT ON THE

EETROOT SUGAR INDUSTRY IN
RUSSIA, FROM ITS FIRST INTRO-
DUCTION IN 1800 UNTIL THE
CAMPAIGN OF 1897-98.

*Presented to both Houses of Parliament by Command of Her Majesty,
JULY, 1898.*

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1898.

*Report on the Beetroot Sugar Industry in Russia, from its First
Introduction in 1800 until the Campaign of 1897-98*

By MR. CONSUL H. SMITH.

(Received at Foreign Office, July 4, 1898.)

In view of the conflicting accounts of the beetroot sugar industry of Russia, I have prepared the following particulars of the industry from its first introduction into the country until the present campaign of 1897-98. Perhaps this résumé will put the extent of Russian sugar trade more clearly before the public interested in the subject, than the references made thereto in the annual trade reports—references which only refer to the production, &c., of the year in question, without keeping always clearly before the reader the various combinations introduced by the Government and private syndicates for the regulation of production, home consumption, and disposal of surplus production. The following particulars ought to be all the more welcome to those interested in this trade, owing to the sugar question having been prominently before the public of late.

The production of sugar from beetroot was first brought into public notice by a Berlin chemist in the year 1747, but little or no attention was given to the discovery until the year 1790, when the question was taken up in a practical manner. The first beetroot sugar factory was erected in Silesia in Germany, and immediately thereafter the industry was inaugurated in France, Napoleon I. taking a personal interest in the discovery and authorising five schools to be opened for the practical study of the subject.

The question was taken up in Russia, not by a chemist, or one having any special training, but by a landed proprietor, Major-General Blackennagel, who in 1800 built the first factory for producing sugar from beetroot on his estate in the province of Tula. Until the year 1809 this was the only factory in Russia, but seven or eight were built about this time, and between 1830-40 there were over 600 factories at work in the country. It is worthy of note that these factories were built in the provinces of Tula, Kaluga, Orel, Tambow, Smolensk, Grodno, Mohilew, and Kursk, and it was only about the year 1840 that the industry began to force its way into the southern provinces, where it has developed with such strides as to have become one of the leading industries of Russia.

Up to the year 1860, the factories were mostly built and owned by the landed proprietors, but with the freedom of the serfs, private firms and more largely joint stock companies took up the trade, and in many cases purchased the factories owned by the magnates.

Number and construction of factories and their average production.

Naturally, the factories existing up to 1860 were mostly of very primitive construction, wooden sheds containing plant costing from 120% to 150%, and bearing little or no comparison to the palatial factories of the present day, built of brick and iron and costing from 60,000% to 150,000%. In 1848 there were 380 factories at work with a total output of 1,195,000 poods (19,272 tons) or an average of 3,145 poods (50·75 tons) each, and of this production the six largest factories each produced about 15,000 poods (242 tons), and 43 of the smallest each produced less than 1,000 poods (16 tons). In 1858 the same number of factories were producing 2,438,420 poods (39,330 tons) or an average of 6,417 poods (103·5 tons). In 1868 with 300 factories at work the production was 6,840,700 poods (110,334 tons) or an average of 22,802 poods (367½ tons). In 1881 with 234 factories at work the production was 15,994,390 poods (257,974 tons) or an average of 68,360 poods (1,102 tons). In 1891, with 225 factories at work the production was 28,362,954 poods (457,467 tons) or an average of 126,057 poods (2,033 tons).

For the present campaign of 1897-98 with 238 factories at work the production is officially given as 46,795,000 poods (754,758 tons) or an average of 196,618 poods (3,171 tons).

Therefore, we find that the production from 1848 to the present date has increased in the following ratio:—

Year.	Quantity.		Increase.	Number of Factories in Operation.
	Poods.	Tons.	Per cent.	
1848	1,195,000	19,272	..	380
1858	2,438,420	39,330	104	380
1868	6,840,700	110,334	180	300
1881	15,994,390	257,974	134	234
1891	28,362,954	457,467	77	225
1897-98	46,795,000	754,753	65	238

Total quantity of sugar produced from 1800 to 1892-93.

The total quantity produced by Russia from 1800 to 1892-93 campaign was 491,112,279 poods (7,921,166 tons). Of this quantity 447,055,493 poods (7,210,573 tons) were consumed in Russia, while 44,056,786 poods (710,593 tons) were exported to Europe and Asia as detailed later on.

Percentage of sugar extracted from roots.

In keeping with the productive power of each factory during the time already mentioned, so was the percentage of sugar extracted from the beetroot. In the early years of the industry ½ lb. of sugar was extracted from 12 poods (4 cwts.) of roots. In 1830 this had risen to 6 lbs., in 1848 to 15 lbs., in 1863 to

22 lbs., in 1872 to 29 lbs., in 1882 to 35 lbs., in 1892 to $42\frac{1}{2}$ lbs., and at present date to $44\frac{1}{2}$ lbs. Therefore, we find that the quantity of sugar extracted from the same quantity of beetroot from 1800 to present date has increased as follows :—

Year.						Quantity.
						Lbs.
1800..	..	..	..	..	..	$\frac{1}{2}$
1830..	..	..	..	..	..	6
1848..	..	..	..	..	..	15
1863..	..	..	..	..	..	22
1872..	..	..	..	..	..	29
1882..	..	..	..	..	..	35
1892..	..	..	..	..	..	$42\frac{1}{2}$
1897-98	..	..	..	..	..	$44\frac{1}{2}$

Herein we see the great advance which has been made not only in the improvement of the machinery used in the trade, but also the scientific cultivation of the beetroot, a cultivation which has been so scientifically carried out that the sugar yielding part has been brought to a state of practical perfection.

In 1848 the Government imposed an excise duty upon the quantity of sugar produced, and the fixing of this duty was more or less complicated until the year 1881. The following shows the manner in which the duty was levied when first imposed :—

FOR each Pood ($36\frac{1}{2}$ lbs.) of Sugar Produced.

Year.						Factories Producing—	
						Over 500 Poods.*	Under 500 Poods.*
						Copecks.	Copecks.
1848	..	..	..	..	..	30	15
1850	..	..	..	..	..	45	30
1852	..	..	..	..	..	60	45

* 500 poods = 8 tons.

The introduction of improved machinery rendered the manner of levying the duty so difficult that in 1864 the duty was levied at 20 c. per pood, in 1866 it was increased to 30 c. per pood, in 1867 increased to 50 c., and in 1872 the whole system was again revised and the duty levied at 70 c. per pood which was to be increased to 90 c. if the total sum, for excise duty on Russian made sugar and the import duty on imported sugar, did not reach 6,500,000 r. (650,000*l.*). In 1881-82 the complicated system was entirely abandoned and duty was payable upon the quantity of sugar produced, irrespective of productive power of factory, and was then

fixed at 50 c. In 1883-84 it was raised to 65 c., in 1886-87 to 85 c., in 1889 to 1 r., and in January, 1894, to the duty chargeable at present, viz., 1 r. 75 c. per pood.* In 1892-93 there was a special duty of 40 c. levied upon refined sugar,† that is to say, the soft sugar paid 1 r. per pood, and for every pood of same refined there was an extra duty of 40 c. levied. With the increase to 1 r. 75 c. in 1894 the duty upon refined sugar was withdrawn. The exact figures of excise duty would, therefore, be as near as possible the following :—

Year.						Duty per Pood.	
						Copecks.	
						Without duty	
1800-48	..	..	..	..	..	20·5	
1848-63	..	..	..	..	..	30·5	
1863-68	..	..	..	..	..	30·5	
1868-72	..	..	..	..	..	32	
1872-81	..	..	..	..	..	50	
1881-82	..	..	..	..	..	65	
1882-86	..	..	..	..	..	85	
1886-90	..	..	..	..	..	100	
1890-94	..	..	..	..	..	175	
1894-97-98	..	..	..	..	..		

Import duty
upon sugar.

The duty chargeable upon imported sugar can be traced back to 1782.

Year.						Duty on Sugar per Pood.	
						Copecks gold.	
1782	..	..	..	..	..	20	
1797	..	..	..	..	..	100	
1811	..	..	..	..	..	180	
1819	..	..	..	..	..	75	
1822	..	..	..	..	..	250	
1831	..	..	..	..	..	280	
1842	..	..	..	..	..	380	
1854	..	..	..	..	..	200	
1857	..	..	..	..	..	200	
1863	..	..	..	..	..	250	
						Soft.	Refined.
						Copecks gold.	Copecks gold.
1873	..	..	..	..	..	250	350
1874	..	..	..	..	..	240	340
1876	..	..	..	..	..	230	380
1876	..	..	..	..	..	220	320
1877	..	..	..	..	..	210	310
1878	..	..	..	..	..	200	300
1886	..	..	..	..	..	200	290
1897-98	..	..	..	..	..	380	390

* See Report No. 1232 of Annual Series.

† „ No. 1024 „

The amount of excise duty levied up to 1892-93 is given as Revenue from 266,047,171 r. (26,604,717*l.*) on the production up to that date of excise and 491,112,279 poods (7,921,166 tons) less the rebate upon the import duties. quantity exported.

The amount of import duty levied from 1800 to 1892-93 is given as 230,971,767 r. (23,097,176*l.*) on a quantity of 71,052,552 poods (1,146,009 tons).

The revenue of the country was, therefore, benefited by the sugar trade to the extent of :—

	Amount.	
	Currency.	Sterling.
	Roubles.	£
Excise	266,047,171	26,604,717
Imports	230,971,998	23,097,199
Total	497,019,164	49,701,916

or while the average excise duty equals 54·5 c. per pood we see the import duty equalling 3 r. 25 c. per pood.

The area of land under beetroot cultivation was merely a Land area matter of guess-work until the year 1881-82, when exact under beet- details were first tabulated, and the following table gives the acreage for each year from then up to the year 1897 :—

Year.	Area.	
	Dessiatins.	Acres.
1881-82	233,132	641,113
1882-83	236,195	649,536
1883-84	273,753	752,820
1884-85	291,733	802,265
1885-86	299,664	824,076
1886-87	270,954	745,123
1887-88	231,064	634,426
1888-89	245,762	675,845
1889-90	247,640	681,010
1890-91	280,580	771,540
1891-92	280,447	771,229
1892-93	264,252	726,693
1893-94	305,592	840,278
1894-95	303,724	835,241
1895-96	314,785	865,659
1896-97	315,593	869,881

The exportation of sugar from Russia was first inaugurated Export of in 1869-70, and the following table gives the quantities sugar. exported up to and including the production from the campaign of 1896-97 :—

Year.	Europe.		Asia.	
	Poods.	Tons.	Poods.	Tons.
1869-70	2,028	33	1,443	23
1870-71	7,716	125	13,277	214
1871-72	688	11	1,228	20
1872-73	1,243	20	1,460	24
1873-74	..	..	360	6
1874-75	..	..	651	10
1875-76	499,462	8,056	2,653	43
1876-77	4,026,917	64,950	124,336	2,006
1877-78	244,985	3,951	19,198	310
1878-79	202,804	3,271	42,687	690
1879-80	160,449	2,586	118,914	1,918
1880-81	65,834	1,062	40,764	657
1881-82*	53,631	865	..	..
1882-83	114,875	1,845	..	..
1883-84	111,965	1,806	..	..
1884-85	223,716	3,608	..	..
1885-86	7,332,164	118,260	401,294	6,472
1886-87	2,691,502	43,411	765,271	12,343
1887-88	2,956,968	47,693	1,295,256	20,891
1888-89	5,381,874	86,804	1,439,070	23,211
1889-90	658,870	10,595	1,889,903	22,418
1890-91	3,125,880	50,417	2,186,411	35,265
1891-92	5,666,706	91,400	1,150,724	18,560
1892-93	254,436	4,104	1,073,206	17,810
1893-94	3,453,807	55,706	1,405,691	22,672
1894-95	3,432,852	55,368	1,719,418	27,732
1895-96	9,331,137	150,502	1,742,420	28,103
1896-97	5,092,013	82,130	2,153,163	34,729
Total	55,092,020	888,579	17,088,798	275,625
Grand total	..	..	72,180,818	1,164,204

* From 1881-82 to 1884-85 the exports to Europe and Asia were not specified separately.

Imports.

The total quantity of sugar imported into Russia from the year 1800 to 1893 equals 71,052,553 poods (1,146,009 tons), viz.:—

Years.			Quantity.	
			Poods.	Tons.
From 1800-70	..	..	65,771,280	1,060,827
1870-93	..	..	5,281,273	85,182

And it is worthy of note that the years 1875 and 1893 account for:—

Year.			Quantity.	
			Poods.	Tons.
1875	..	..	1,825,999	29,451
1893	..	..	1,702,774	27,464

respectively of the latter quantity, or 66·81 per cent. of the total imported in 23 years.

In order to avoid unnecessary details I have thought it advisable to place the quantity of sugar consumed in Russia into decades beginning from the year 1800 and not only reckoning the home production, but also the quantity imported as per following table:—

Year.	Home Production.		Imported.		Total.	
	Foods.	Tons.	Foods.	Tons.	Foods.	Tons.
1800-09	3,328	54				
1810-19	30,700	495	17,641,119	284,534	17,825,647	287,511
1820-29	150,500	2,423				
1830-39	728,000	11,742	13,163,288	212,311	13,891,286	224,053
1840-49	4,145,374	66,861	18,528,943	298,854	22,674,317	365,715
1850-59	17,214,868	277,681	14,530,393	234,201	31,744,761	512,012
1860-69	53,319,811	537,408	9,560,131	154,196	42,879,442	691,603
1870-79	119,026,774	1,919,787	3,257,864	52,546	122,284,638	1,972,333
1880-89	183,460,575	3,039,687	307,469	4,959	183,768,044	3,044,646
1890-93	84,987,553	1,532,036	1,714,860	27,660	86,702,413	1,569,716
Total	458,066,483	7,388,169	78,704,063	1,269,421	536,770,548	8,657,590

TABLE showing Yearly Average and Increase in Home Consumption.

				Yearly Average.	Yearly Increase in Home Consumption.
				Foods.	Per Cent.
1800-23	..	..	..	594,188	9,584
1830-39	..	..	..	1,389,128	22,405
1840-49	..	..	..	2,267,431	36,571
1850-59	..	..	..	3,174,476	51,201
1860-69	..	..	..	4,287,944	69,160
1870-79	..	..	..	12,228,463	197,233
1880-89	..	..	..	18,876,804	304,464
1890-93	..	..	..	24,175,603	389,929

TABLE showing Amount paid for Sugar by Home Consumers.

				Amount.	
				Curre cy.	Sterling.
				Roub es.	£
It is interesting to note here that the amount of excise and import duty paid to the Government as already given on page 7 represents the sum of				497,019,164	49,701,916
And if we add to this the price of the sugar of home production.. ..				1,851,729,518	185,172,952
Imported				353,821,861	35,382,186
Showing a total paid by the home consumer for sugar from the years 1800 to 1893 of				2,702,570,543	270,267,054

Yearly average and increase in home consumption.

Amount paid for sugar by home consumers.

TABLE showing Home Production, &c., for same Period.

	Quantity.		Costing plus Import and Excise Duties.	
	Poods.	Tons.	Roubles.	£
The home production for same period as previously mentioned on page 4 was	491,112,279	7,921,166	2,217,776,689	221,777,669
Imported during same period as mentioned on page 8 was	71,052,553	1,146,009	584,793,854	58,479,385
	562,164,832	9,067,175	2,802,570,543	280,257,054
Home consumption ..	513,314,425	8,279,265	2,702,570,543	270,257,054
Exported	48,850,407	787,910	100,000,000	10,000,000
Total	562,164,832	9,067,175	2,802,570,543	280,257,054

Average
price paid by
the home
consumer.

Therefore we find that the average price paid by the home consumer works out at 5 r. 26 c. per pood (32*l.* 12*s.* per ton), or say 3½*d.* per lb., while the quantity exported works out at 2 r. 4 c. per pood (12*l.* 13*s.* per ton), or say 1½*d.* per lb. The manner in which the manufacturer has been recouped for this apparent loss of 3 r. 22 c. per pood (19*l.* 19*s.* per ton), or 2*d.* per lb. will be referred to later on under the heading of bounties, syndicate, and Government control.

Number of
factories at
present in
operation and
where
situated.

At the present time there are 238 beetroot sugar factories (33 of which have a department for the refining of their own production) and 21 refineries. The present campaign, as already mentioned on p. 4, is officially given as yielding 46,795,000 poods (754,758 tons) of sugar, and for the sake of reference I have thought it advisable to give here the different provinces in which these factories are situated:—

Province.	Number of Factories.
*Kieff	63
*Podolia	46
*Wolhynia	13
*Kursk	17
Charkow	23
Poltawa	2
*Tschernigoff	11
Woronesch	7
Orel	2
Samara	2
Tambow	4
Tula	1
Bessarabia	1
Cherson	1
Warsaw	20
Kalisch	4
Keletz	2
Lomshin	2
Lublin	8
Petrokow	2
Plotzk	3
Radom	2
Sedletz	1
Yenessi	1

* Kieff and provinces adjoining.

It will, therefore, be seen from the above table that out of a total of 238 there are 150 situated in Kieff and the provinces adjoining. This, as well as the central position of Kieff, no doubt accounts for it being the centre of the sugar industry. The offices of the Syndicate and Sugar Manufacturers' Association are situated here, while here also are held all their trade meetings, and from this centre are issued their trade bulletins.

There seems to be an erroneous opinion prevalent that Russia never paid any bounties on sugar exported to Europe. This is a mistake, for in July, 1885, it was announced that in addition to the return of the excise duty a premium of 1 r. per pood would be paid by Government on all sugar exported up to the beginning of November, 1885. This bounty was introduced in order to get rid of the surplus quantity of sugar which was causing the price upon the home market to rule lower than 4 r. per pood (24*l.* 16*s.* per ton). The abundant harvest of beet in 1885 was the cause of a further over-production of sugar, and the price fell to 3 r. 40 c. per pood (21*l.* 1*s.* 8*d.* per ton) upon the home market, and the Government again came to the rescue by granting a bounty of 80 c. per pood (4*l.* 19*s.* per ton) from November 1, 1885, to May 1, 1886, on all sugar exported to Asia, and to July 1, 1886, on all sugar exported to Europe. Notwithstanding the fact that 1886 saw the largest quantity exported in one year,* over 6,000,000 poods (96,770 tons) having been

Bounty on
sugar
exported.

* See Annual Series Nos. 706, 877, 1024, 1232, and 1439.

exported by the beginning of March the surplus production still showed a tendency to keep prices down. In fact, there was little or no difference between the prices upon the Kieff and London market when it is kept in view that the excise duty was returnable upon all sugar exported. It is interesting to note here that these bounties or premiums were refunded by the Government upon the easy credit system. The bounty of 1 r. was deducted from the excise duty of the succeeding two campaigns, while that of 80 c. was deducted from the excise duty payable by the factories during the succeeding four campaigns.

The sagacity of such a manner of payment shows itself when it is kept in view that the price ruling in Kieff was on a par with that of London. Given, therefore, an immediate return of the premium many would have preferred to export all their production and have a quick return for their money, instead of running the risk of having to carry forward their stocks until another year, and in this manner the home market might have suffered from excessive export. The system of paying the bounty obviated all this by simply reducing the amount payable in excise duty during a term of four years.

Inauguration
of private
syndicate.

In April, 1887, the Syndicate of Sugar Manufacturers was inaugurated and duly received the sanction of the Government. In my annual trade reports for the years 1889 to 1893 I fully described the action of this syndicate, and it will be necessary here to recapitulate from these reports. The object of the syndicate was mainly to regulate the price of sugar upon the home market, and in order to do this it was necessary to regulate also the production of sugar. Shortly put, the syndicate said, the home consumption is more or less a fixed quantity, therefore we will allot to each factory a proportion of said quantity in keeping with its producing powers, and any quantity produced above that allotted cannot be put upon the home market, but must be exported irrespective of loss incurred thereon. Of the 221 factories then in operation 190 were parties to this agreement, while 31 did not enter the combination. The Government, in sanctioning the operation of the syndicate, insisted upon certain stipulations, chief of which were, that upon all sugar exported by syndicate the excise duty would be returnable, and that should the price of sugar upon the home market advance to 4 r. 65 c. per pood (28l. 16s. per ton) then all exportations must cease.

An example of the effects of the syndicate's action was given in my report for 1889, wherein I gave a practical illustration of the apparent loss of 78,034l. on the quantity exported, viz., 21,282 tons, whereas in reality there was a gain to the manufacturers of 2,164,274l. (after deducting the above loss), because the exportation of the surplus sugar avoided any risk of the home market being glutted, and so causing prices to fall. Under the heading of Government control I give an example of the universal gain to the trade through the apparent loss sustained

on the quantity designed for export from the campaign of 1896-97.

In a pamphlet issued by the syndicate in defending attacks made upon their actions, it is said:—

“It is clear that once the superfluous sugar has reached such proportions and must be exported, the price upon the home market by irregular exportation would equal the price upon the foreign market (in this case London as the universal market) swallowing up all the superfluous sugar, less the cost of freight, but plus the excise duty. At the present time (1895) therefore, for instance, with the price of white crystals on the London market at 1 r. 55 c. per pood, the price of the same upon the Russian market, if there were no syndicate, would be about 2 r. 80 c. per pood (17l. 7s. per ton) thus:—

					Per Pood.
					Roubles.
London price	..	..	..	..	1 55
Less freight, say	..	..	..	..	50
					1 05
Plus excise duty	..	..	..	..	1 75
					2 80
Total	..	..	..	..	

“the latter item being returnable upon sugar exported. In this manner, with the present over-production, and let us say, no regulating of exporting same, the price upon the home market to the Russian manufacturer would be the value of same upon the London market (less cost of freight) and plus excise duty. . . . If we add to this that the French, German, and Austrian Governments grant a bounty upon all sugar exported, which Russia does not, the different position of the Russian manufacturer will be at once apparent as regards his returns from the London market.”

The most important fact in connection with this point has been overlooked by the writer of the above, viz., that it is entirely due to the granting of bounties by the French, Austrian, and German Governments that the price of beetroot sugar has fallen to 9l. 12s. per ton on the London market as given above.

The syndicate ceased to exist in 1894, and before leaving this subject it may be interesting to read the following extract from my report for 1893*:—

“I have so often given particulars of the baneful influence of this combination of manufacturers, that it would be superfluous to again go into its conception and history. The year 1893 witnessed the remarkable fact of the Russian Government importing 1,714,018 poods, or 27,646 tons, of foreign-made

* See Annual Series No. 1439, page 20.

sugar, consequent upon the action of the ring having exported the surplus production of 1892-93 campaign. This action was forced upon the Government in order to keep the price upon Kieff market from rising above 5 r. 20 c. per pood, or 32*l.* 5*s.* per ton, in accordance with ukase mentioned in my report of 1892. Of course, as long as the "ring" is allowed to export the surplus production, there is the prospect of price being kept high enough to call for Government intervention often enough in the future. The foregoing quantity imported cost the Government 6,225,067 r., or 622,506*l.*, and was sold by Kieff branch of St. Petersburg International Bank on their behalf for 9,436,561 r., or 943,656*l.*, leaving a clear profit of 321,150*l.* upon the transaction. It certainly seems curious to those unacquainted with the wonderful working of 'rings' or 'syndicates' to see the ring, in order to maintain the price upon home market, exporting surplus production, and securing the excise duty on same as a drawback, and Government having to step in and import sugar to meet the demand of Russian consumers, who, unfortunately, have to pay dearer for sugar on account of such actions.

"The sugar factories of this district, as an investment for capital, may be considered as equalling a Californian gold mine by those fortunate enough to possess shares. With factories paying dividends of 23, 30, 33, 38, 53, 55, 62, and 80 per cent. upon invested capital, it is no wonder that new factories are projected, and others, long standing idle, are to be remodelled and started. It is difficult to imagine legitimate trading giving such returns upon capital, but as long as rings or syndicates are allowed to exist there is every prospect of such dividends being paid out annually. By law neither foreigners nor Jews are allowed to purchase shares in sugar factories. Keeping such facts in view, it is clear that the existence of rings or syndicates is a question of vital importance to those who own factories or shares in same, and when promoters of rings state that sugar is a luxury for the well-to-do portion of the community, there can be no doubt of every endeavour being made to prolong existence of rings."

Naturally, the home manufacturers reaped a rich harvest during the above period, for on page 19 of same report we find that the average price upon the home market during 1893 was 31*l.* 10*s.* per ton (5 r. 8 c. per pood), while the price upon the London market was about 14*l.* 15*s.* per ton. Many of the manufacturers were dissatisfied with the allotment of quantity made by syndicate, and in the above-mentioned report I stated: "That the quantity allotted rarely allowed the factory to work full time, the consequence being that the cost of production came out too high, and in those cases where production exceeded allotted quantity, there was a double loss in having to export same. On the other hand, had these factories the right to work to their full capacity, the cost of production would be greatly reduced, and loss upon quantity exported would consequently be much less."

The Government having refused to prolong the existence of the syndicate, ultimately introduced a measure of its own which was anything but favourably received by those engaged in the production of sugar. The following is the text of the ukase, and it was ordained to run for the three campaigns of 1895-96, 1896-97, and 1897-98. Recognising the necessity of taking steps, called forth by the present critical position of the sugar industry, and to guarantee the home market with sugar as well as the fixing of a moderate price it is Imperially sanctioned:—

1. In the forthcoming campaign of 1895-96 to form in sugar factories and refineries a reserve up to 5,000,000 poods through the deduction of 25 per cent. from the sugar produced in each factory above 60,000 poods.

2. Sugar transferred to this reserve is free from excise duty until its issue from factory.

3. To permit drawing upon this reserve for the supply of home market, only when the price to be fixed by the Minister of Finance has been reached.

A great many circulars have since been issued by the Minister of Finance defining more minutely the manner in which the State control has to be carried out. Most important of these were "that the reserve sugar was to remain inviolable until leave was granted by the Finance Minister to draw upon it, that the boundary price for white crystals, inclusive of excise, is fixed for the period from September 1, 1895, to January 1, 1896, at 4 r. 75 c. per pood (29l. 9s. per ton), and from January 1 to September 1, 1896, at 5 r. per pood (31l. per ton). The issue from reserve can be sanctioned by the Minister of Finance only, when the price in Kieff district, with delivery to stations of South-western and Eastow railway lines has risen beyond the sums above-mentioned, in prompt cash during a currency of two weeks during aforementioned seasons.*

"Further, that all sugar produced above the quantity required for the home market will be reckoned a surplus production, and will pay a tax in addition to excise duty of 1 r. 75 c. per pood, the surplus production will be proportionally reckoned to each factory in accordance with their production beyond the 60,000 poods to each factory, and that this surplus production can only be put upon the home market after payment of the aforementioned tax, but manufacturers may leave their surplus production in their factories as a 'free reserve,' and consequently pay neither tax nor excise so long as the sugar remains in their factories."†

The quantity for home consumption from the campaign 1895-96 was fixed at 25,500,000 poods (411,300 tons), and the quantity for "inviolable reserve" at 2,500,000 poods (40,323 tons).‡

The production of sugar from this campaign having reached

* Circular of July 12, 1895.

† Circular of November 20, 1895.

‡ Circular of November 29, 1895.

the unexpected total of 42,465,554 poods (684,928 tons), while the quantity fixed for home consumption and reserve was 28,000,000 poods (451,613 tons), the manufacturers were allowed to put a certain percentage more upon the home market, and also had to add to their reserve.

The quantity for home consumption from the campaign of 1896-97 was fixed at 28,000,000 poods (451,613 tons), and the quantity for reserve at 2,500,000 poods (40,323 tons). The boundary prices were altered from 4 r. 75 c. and 5 r. per pood to 4 r. 65 c. and 4 r. 90 c. per pood (28*l.* 16*s.* 6*d.* to 30*l.* 7*s.* 6*d.* per ton) respectively for the seasons already mentioned.

The quantity for home consumption from the campaign of 1897-98 was fixed at 31,000,000 poods (500,000 tons), but as the boundary price was practically reached in November-December, 1897, the Minister of Finance authorised the issue of 1,250,000 poods (20,160 tons) from the inviolable reserve, and 750,000 poods (12,100 tons) from the "free reserve." The quantity for home consumption was thus increased to 33,000,000 poods (532,260 tons), while the boundary prices were lowered 5 c. and 10 c. from those fixed for 1896-97 campaign.

In my report for the year 1896,* I went into the question of "the State control being equivalent to a bounty," and perhaps the repetition of the remarks then made may help to put this question more clearly before those interested:

"Great Britain is the principal customer for the sugar exported from this district. The Government several years ago ceased to grant a bounty on the sugar exported, and now only foregoes the excise duty of 1 r. 75 c. per pood (10*l.* 17*s.* per ton) on all sugar exported. As previously mentioned the average price upon the home market in 1896 was 30*l.* 3*s.* per ton, which includes the above excise duty, and if we deduct this duty of 10*l.* 17*s.*, the return for exported sugar ought to be 19*l.* 6*s.* per ton. The average year's price upon the London market was 11*l.* per ton, so that the Russian exporter in addition to having to bear the cost of delivery c.i.f. London, lost 8*l.* 6*s.* upon every ton exported.

"Considering the quantity Russia exports, this loss must appear to the uninitiated as sufficient to ruin the trade; but it is here that the action of the Government control, based more or less upon the lines of the defunct syndicate of sugar manufacturers, and fully described in my last year's report, comes in. By regulating the quantity allowed to be put on the home market, the Government also thus regulates the price—with the proviso, however, that should it rise in this district above 4 r. 75 c. per pood (29*s.* 6*d.* per cwt.) between September 1 and January 1, and 5 r. per pood (31*s.* per cwt.) between January 1 and September 1, the reserve stock is to be thrown upon the market. It is, therefore, clear that by keeping up a forced price upon the home market there is a gain which can withstand the loss made upon

* Annual Series No. 1980, page 17.

the quantity exported, and still leave very good dividends to the manufacturers. This system is in a manner an indirect 'bounty' one, as, instead of the bounty being paid out of the Imperial Exchequer and taxed upon the people, they have to pay an enhanced price on the sugar they use; and in whatever way such trades are artificially bolstered up through 'bounties' or 'controlling measures,' it is the home consumer who has to pay for such protection. The printed reports of several sugar factory companies show the net cost of production to range from 2 r. 10 c. to 2 r. 65 c. per pood (14*l.* 16*s.* to 17*l.* 7*s.* per ton), and by adding the excise duty of 11*l.* 12*s.* this brings the price up to 26*l.* 8*s.* per ton in the most favourably constructed factories, and 28*l.* 19*s.* in those less so; and between these figures and the price at which the sugar was sold upon the home market, the profit of the producer comes in. Given no excise duty and no controlling of the trade, there is little doubt that there would be an immense increase in the home consumption, and it would be necessary for the British importer to look elsewhere for his supplies, or assist in resuscitating the sugar industry of Great Britain and the West Indies, which have been crushed out of existence by bounty-fed foreign competition."

In order to put the matter more clearly as to how the State control, like the former private syndicate, in keeping up the price upon the home market causes the apparent loss upon the quantity exported to be in reality an immense gain to the individual producer the following figures will show. Leaving out of the question the 40,322 tons of fixed reserve, and 86,012 of free reserve given above, we then have 483,872 tons for home consumption and 153,226 tons for export.

The loss upon quantity of sugar exported in reality an immense gain to producer.

	Sterling.	
	£	s.
Taking the net cost of production at an average of 2 r. 30 c. per pood (14 <i>l.</i> 5 <i>s.</i> per ton), we find that 483,872 tons at 14 <i>l.</i> 5 <i>s.</i>	=	6,895,176 0
Excise duty at 10 <i>l.</i> 16 <i>s.</i> 6 <i>d.</i>		5,237,914 8
Total		12,133,090 8
This quantity having been sold upon the home market at 30 <i>l.</i> 3 <i>s.</i> per ton, realised		14,588,740 16
Less cost of production and plus excise		12,133,090 8
Amount of profit		2,455,650 8
The 153,226 tons exported cost to produce, at 14 <i>l.</i> 5 <i>s.</i> per ton		2,183,470 10
Add freight to London at 50 c. per pood (3 <i>l.</i> 2 <i>s.</i> per ton)		475,000 12
Total		2,658,471 2
Deduct price of 11 <i>l.</i> per ton, at which sold in London		1,685,486 0
Total loss on sugar exported		972,985 2

Now it stands to reason if this quantity of 153,226 tons had not been exported, and could have been thrown upon the home market that the price thereon would have fallen considerably, but the price was maintained solely on account of this quantity being exported, and we are quite justified in squaring the account thus:—

				Sterling.	
				£	s.
Profit upon quantity sold for home consumption	..			2,455,650	8
Less loss upon quantity exported	..	..	..	972,985	2
Net profit	..	..	..	1,482,665	6

or in other words, taking the net cost of production of both quantities as 6,895,176*l.* plus 2,183,470*l.* 10*s.* equals 9,078,646*l.* 10*s.*, there was a profit of 1,482,665*l.* 6*s.*, being equal to 16½ per cent. on the cost of production. In justice to the manufacturers it must be borne in mind here that the reserve stocks equals 126,334 tons at 14*l.* 5*s.* represents the sum of 1,800,259*l.* 10*s.* of locked-up capital, and the interest thereon would therefore fall to be deducted from the aforementioned profit. The Government kept this in view, and accepts every poond of the "inviolable reserve" as representing 75 c. per poond in payment of the duty to be paid by the holder on the quantity put upon the home market.

The Minister of Finance, in his instructions for regulating the quantity to be exported, permits factories not favourably situated for exporting to transfer their rights to other factories, thus allowing them to put so much more of their production upon the home market. When this is done the factory which transfers, lessens by so much its "free reserve," while the other factory increases it.

By this plan the speculation which existed in "export warrants" during the existence of private syndicate has been eliminated.

The original term of State control expiring with close of the present (1897-98) campaign, left the manufacturer in grave doubts as to what future steps were likely to be adopted by the Government. Although no official announcement has yet been made, the trade have received information that the measure has been prolonged for another three years.

In my report for 1896* I made the following remarks upon this subject:—

"The statistics at hand bearing upon the home consumption of sugar give an average yearly increase of something like 12,903 tons, which works out at ¼-lb. per annum, assuming the population to be 128,000,000. Even taking the home consumption upon the increased basis of 483,872 tons and above population, this gives about 8½ lbs. of sugar per head of popula-

Consumption
of sugar per
head of
population in
Russia.

* Annual Series No. 1980, page 17.

tion. The point I wish to impress is that when the consumption of sugar in this country comes within measurable distance of what it is per head of population in other countries, allowing that 80 lbs. per head in Great Britain is a high percentage, instead of 235 factories being sufficient to meet the requirements of this country, there would be something like 1,000 factories required to give a production of 3,709,677 tons. There is no doubt, therefore, that there is a great future for this industry, and it would be more inducive to a speedy development if the trade were left to work out its own salvation, instead of being weakened by artificial means of regulating production or prices. There is no better governor to regulate such a trade than the law of supply and demand; and if the supply exceeds the demand even at present, the question arises is this due to the price being 15 c. ($3\frac{1}{2}d.$) per lb. upon the Russian market, for the same article which is sold in London at $1\frac{1}{2}d.$ per lb., or to the fact that the Russian peasantry in many districts are still in ignorance that such a commodity of daily existence as sugar exists."

While on this point it may be interesting to note the Consumption per head in other countries as given by the "Scheibl. N. Zeitechr., 1897, XXXVIII, 293":—

Country.	Consumption per Head.	Estimated Population.
	Lbs.	
Great Britain	86.09	39,000,000
America	62.60	70,000,000
Switzerland	44.66	2,895,000
Denmark	45.41	2,300,000
Netherlands	31.30	4,732,000
France	30.61	38,800,000
Germany	26.78	51,650,000
Belgium	22.50	6,325,000
Austria	19.81	43,456,000
Russia	8.25	128,000,000

These figures are very startling when considered in relation to the quantity of sugar produced by the countries enumerated. Taking the production of 1896 we find:—

Country.	Quantity Produced.	Quantity Consumed by Population.
	Tons.	Tons.
Russia	644,900	483,872
Germany	1,821,000	621,678
France	703,300	532,942
Austria-Hungary	929,900	389,125
Belgium	280,000	63,532
Netherlands	156,800	66,122
Switzerland	102,000	57,719
Total	4,637,900	2,214,990

Great Britain is a non-producer, and consumes 1,500,000 tons of sugar per annum, or close upon one-third of the total production of above countries, while these countries consume less than one-half of their aggregate production.

The most remarkable fact the above figures bring before us is that the countries granting export bounties or artificially regulating the production and prices are the very countries whose population consume less sugar per head.* This emphasises very strongly the point that fostered industries are not to the benefit of the general good, especially where these industries are producing quantities exceeding by 50 per cent. the present requirements of the population of the countries.

Jam industry. A good deal of capital has been made out of the fact that since sugar has become dirt cheap there has been an enormous increase in jam-making, and that Great Britain is now supplying "the Continental market with British made jam," as a writer to the "Times" put it the other day. I am quite aware that there has been an enormous increase in the manufacture of jams and sweets, and that the price of same has been reduced to a very great extent. So far as regards Great Britain supplying "the Continental markets" I am not in a position to speak, but in all my travels in Russia I have never yet come across British made jams or jellies, and I cannot see how these could be imported into Russia in the face of a duty of 8 r. 16 c. gold per pood, equals 12 r. 24 c. or 8*½* per lb. Besides, it may not be known that the Russians are noted for their superior home-made jams and jellies, equalling the best, and surpassing by far the ordinary shop articles to be met with in England.

Abolition of bounties would benefit Russian sugar trade.

If the bounties given at present by France, Austria and Germany can be abolished, the step can only be to the ultimate good of the sugar industries of these countries. No doubt there will be a lot of trouble at first on account of the disturbance of the existing system, but the law of supply and demand will regulate the question speedily and satisfactorily. The abolition of bounties would greatly benefit the sugar industry of Russia in so far that the price upon the world's market, London, would naturally rise equivalently to the bounty formerly granted, and therefore the manufacturers in Russia would meet their German, Austrian and French competitors upon even terms.

* Besides showing the absurdity of keeping up the price to the consumer in the protected country of production.

The world's production of sugar from the four campaigns 1893-94 to 1896-97 was as follows:—

World's
production of
beet and cane
sugar.

	Quantity.			
	1896-97.	1895-96.	1894-95.	1893-94.
	Tons.	Tons.	Tons.	Tons.
Beetroot sugar—				
Germany	1,800,000	1,615,111	1,844,586	1,381,603
Austria-Hungary ..	1,050,000	791,405	1,055,821	841,809
France	780,000	667,583	792,511	579,111
Russia	750,000	783,489	615,058	658,070
Belgium	265,000	260,000	243,957	240,317
Netherlands	145,000	106,829	84,597	75,015
Other lands	170,000	169,120	156,000	113,610
Total	4,960,000	4,393,537	4,792,530	3,889,535
Cane sugar	2,747,500	2,945,811	3,570,413	3,552,374
Grand total	7,707,500	7,339,348	8,362,943	7,441,909

During the campaign 1896-97 the following were the number of factories engaged in production of beetroot sugar:—

Number of
factories
engaged in
production of
beetroot
sugar.

Country.	Number of Factories.
Germany	400
Belgium	111
Austria	217
Netherlands	30
France	358
Russia	235

One seeks in vain for particulars of the quantity of sugar imported into England from Russia. In the London trade "Russian crystals" are quoted weekly, and I have personally seen sales carried through in England for Russian crystals c.i.f. Stettin or Dantzic, and it is possible enough that the sugar in question is credited as being "made in Germany." From the figures given by Whitaker we find that in 1896 England received beetroot sugar from the undermentioned countries to the following amounts:—

No statistics
of Russian
sugar
imported into
Great Britain.

Country.	Value.
	£
Germany	9,294,601
Austria-Hungary ..	5,006,395
France	1,812,035
Netherlands	1,504,705
Belgium	985,495
Russia	(?)

yet Russia exported 149,482 tons of sugar to Europe in 1896, most of which found its way to London.

One of the Kieff daily papers referred to this subject only the other day in following terms:—

“From statistics received regarding the export of Russian sugar viâ Dantzic, we find that from the present campaign there has already been shipped from this German port 2,535,660 poods (40,898 tons), which was forwarded to the following countries:—

Country.				Quantity.	
				Poods.	Tons.
England ..	..	..	..	952,980	15,730
Holland ..	..	..	..	40,200	794
America ..	..	..	..	166,440	2,684
Italy ..	..	..	..	119,400	1,926
Finland ..	..	..	..	676,860	10,917

“In addition to the above quantities there are 580,920 poods (9,370 tons) awaiting shipment to Finland, and 1,473,600 poods (23,768 tons) in stock. It is not without interest to observe here, that Russian sugar before it can reach Italy or Finland must be forwarded viâ Dantzic in Germany, and not viâ Russia's ports of Odessa or Riga.”

Great future
for the beet-
root sugar
industry of
Russia.

That there is a great future for the beetroot sugar industry of Russia there cannot be the slightest doubt, and there is bound to be an immense increase in quantity consumed by her own population. This increase, however, can only take place when the system of taxing the home consumer and making him pay about three times more for what the same sugar is sold to foreign nations has been abandoned as being just as detrimental to the interests of the manufacturer as it is to the consumer.

Exportation to Europe will also increase, and once the great Siberian railway is opened, we shall in all probability see Russian-made sugar supplying the wants of China and Japan.

In compiling the historical part of this report I have been greatly indebted to the Russian “Review of the Sugar Industry,” written by Mr. M. A. Tolpigan of Kieff. In making up this report 10 r. have been reckoned equal 1*l*., one pood equal 36½ lbs., and 1 dessiatin equal 2¼ acres.

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DIPLOMATIC AND CONSULAR REPORTS.

REPORT ON AGRICULTURE IN LAS PALMAS.

*Presented to both Houses of Parliament by Command of Her Majesty,
MARCH, 1898.*

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LAS PALMAS.

Consul Maclean to the Marquess of Salisbury.

(Received at Foreign Office, February 10, 1898.)

My Lord,

I HAVE the honour to transmit herewith a Report by Mr. Vice-Consul Ferguson on Agriculture in Las Palmas.

I have, &c.

(Signed) ALLAN MACLEAN.

Report on Agriculture in Las Palmas.

I receive annually a considerable number of letters from ^{Agriculture.} people apparently anxious to try their fortune in growing something in Canary. They fancy it a good thing for their health, perhaps, to come out to our grand climate, dabble in fruit, and expect to find an easy subsistence or fortune waiting for them. This place is small, fortunes are smaller, and the number of those who make them smallest of all.

People who want to come out here to do a fruit business must have a perfect knowledge of the English market and its requirements, where to, whom to, and how to send their produce home, and, most important, when to send it and when to throw it away. They must be prepared to enter into contracts to sell the whole produce of a given standard of size and quality that the contracted land produces at a stipulated price per 100 lbs. in the case of tomatoes and potatoes, and at per bunch of so many "hands" in bananas. That means they must have the necessary capital, so that in a dry season, such as last year, when, owing to no rain having fallen, the heat, and concurrent causes, they can afford to take and handle all the fruits, which, unfortunately, ripen and come forward at the same time, making the balance of the home market go wrong, and themselves, too, if not strong enough to tide it over. In other years the *malezu* will be prevalent and they will lose all the fruit they have counted on having to ship. The business has large profits when things go right, and, provided the possession of sufficient capital, local knowledge of English

markets, good administrative ability to deal with the Spanish fruit-grower, packer, and peon, bodily strength enough to endure long riding in the saddle under a hot sun over mule tracks between different villages, and the strain of constant day and night work when a ship is due home, then let them go into the business, and they will prosper; otherwise the best advice is, Don't.

For the information of all such, and of manufacturers of implements and others, I send the following notes. They are, I know well, very incomplete, and must not be taken in any way as a complete report on agriculture, the principal source of wealth in the island. To make a report with statistics would mean a special journey of two months' duration from town to town and hamlet to hamlet, as no such statistics exist as would be useful.

An enormous quantity more fruit can be grown if land can be opened out to irrigation, and prompt and economical transit created, as the lands uncultivated at present are some of the richest in the island.

The land principally in cultivation is the alluvial soil at the bottoms of the *barrancos* and the low-lying lands along the sea-coast on the northern and north-eastern coasts of the island. The number of *barrancos* of large size in the island is 32, of which 25 are well cultivated. From these branch off many smaller ones into the hills, but few of these are irrigated. For this reason, the land available at the present time for cultivation is of very small extent, as, owing to scarcity of stored-up water, only the low-lying lands are made use of, although, as all the *barrancos* run off from a central watershed, government or private irrigation would be simple, and yield an enormous income.

Ownership
of land.

The land is nearly all native-owned, and is worked, so far as water allows, to the utmost. Such as is in British hands is entirely under tomatoes, bananas, and vines.

Price.

The price of land, compared with prices in England, is enormously high, but one must reckon that, for ordinary crops, it yields from three to four crops a year on the low lands. To judge of prices, it must also be borne in mind that land without irrigation and unploughed is worth not over 1*l.* the acre to rent.

The vineyards in the Monte district, the only real wine district in Canary, produce almost exclusively red wine, and are worth, according to the zone and class of plants, 5,000 to 7,000 pesetas per fanegada, *i.e.*, 200*l.* to 280*l.*, equal to 150*l.* to 210*l.* per acre.

The land used for the cultivation of potatoes and tomatoes all over the island is priced according to the supply of water (since the yield depends on that), the facility of access, and the number of maize crops it can give in a year. It is also regulated in accordance with the return in weight given by the maize. It is therefore quite impossible to give a price for this class of land.

Rental : how
paid.

The usual condition of rental is to let it out to a middleman

or husbandman, who finds labour, and pays as rent half of the money realised for the produce. Maize land is all worked in this way, and such a thing as a rent is hardly known.

Wheat and such green crops are grown in the highlands wherever the rains are sufficient, or a tank can be got to irrigate them. They are seldom planted on land when water has been either bought or led. It would not pay to spend time and money on such crops.

The cultivated land is divided somewhat as follows:—

Distribution
of cultivation.

Sea-coast lands, that is low level tracts on the seashore, varying in breadth from a quarter of a mile to two miles.

	Crops.
Sea-coast lands—	
Santa Catalina, Las Palmas	Bananas
Quartermes	Maize and potatoes
San José	Bananas
Telde	Sugar, bananas, and tomatoes
Gando and Juan Grande ..	Sugar, tomatoes, and maize
Arquaniquin	Tomatoes, maize, and potatoes
Galdar	Tomatoes, sugar, maize, and potatoes
Guia	Do. do.
Banaderos	Sugar, tomatoes, and bananas
Uplands—	
Monte and Santa Brigada..	Sugar and wine
San Mateo	Walnuts, chestnuts, almonds, and fruit
Valle Seco	Do. do. and fruit
Tirajana	Do. do. and tobacco
Guia	Pasturage
Barrancos—	
Lorenzo	Sugar, maize, and potatoes
Confital	Maize and potatoes
Tenoyas	Maize, potatoes, sugar, and bananas
Banaderos	Sugar, cochineal, bananas, and tomatoes
Azuage or Firgas	Grains, potatoes, and bananas
Moya	Bananas, tomatoes, sugar, and grains
San Felipe	Sugar, grain, and potatoes
Barranco Hondo del Rio ..	Sugar
Guia	Sugar, potatoes, and tomatoes
Anzofe	Tomatoes, sugar, and cochineal
Hondo de Juncal	Tomatoes, sugar, grain, and cochineal
Agnete	Tomatoes, sugar, cochineal, and fruits
Arenas	Grain and sugar
Aldea	Tomatoes, sugar, fruit, and cochineal; also grain and potatoes higher up
Tasarte and Vineguera ..	Tomatoes, grains, and potatoes
Mogan	Tomatoes, cochineal, and grain
Arquaniquin	Tomatoes at the mouth, grain and almonds higher up
Fataga	Tomatoes, grain, potatoes, fruits, and almonds
Tirajana	Almonds, maize, tomatoes, olives, and tobacco
Balos and Tamisas	Tomatoes, potatoes, and grain
Quayadeque	Sugar, tomatoes, fruit, potatoes, and grain
Aquatona	Sugar, bananas, tomatoes, and potatoes
Telde	Tomatoes, bananas, oranges, and cochineal
Ginamar	Cochineal and bananas
Quinquada.. ..	Bananas, sugar, wines, grains, and fruit

In all these *barrancos* figs are grown on the borders of the fields, prickly pears and grapes for eating on trellis-work along the paths. Oranges are also general, though not in large quantities. Lemons and citrons are grown principally in Telde *barranco*, and to the south dates come to maturity in the low *barrancos*, and at Galdar, on the north-west coast. Some Cuban fruits are grown in Agaete, and in private gardens throughout the island.

The western slopes of the central range, the "cumbres," are covered with pines down to a level of 1,500 feet above sea level.

Pasturage is found on all the hills and sides of the *barrancos* for goats and sheep.

Grain grows to any level where water can be found.

Flax is grown on the eastern slopes of the highlands behind San Mateo.

Water.

Water is generally the property of the owners of the land in the zone to be irrigated. The quantity allotted to each proprietor is determined by the requirements of each at the time of creating the lead, or "zequia." These waters constitute what is known as the "heredamiento," and societies are organised on a legal basis, and managed by rules and regulations which oblige the owners of the water, from the smallest crofter to the largest landed proprietor, to contribute in proportion, and to respect the rights of each other. Besides these "heredamientos," there are also proprietary waters owned by individuals, which do not belong to the commonwealth. These are owned, held, sold, or let similarly to a house, and can be let out by the day, hour, or *azado*, which last is the quantity required to irrigate a *fanegada* of land (about an acre and a third). The price of this water varies with the season of the year, and it is generally let out in the first instance to speculators at an annual auction. The hours of supply or quantity by measure count from the outlet of the reservoir, and the responsibility for conducting it and leading it on to a farm is on account of the purchaser. Sometimes, owing to the badly maintained conduits, much and even all is lost, owing to the leads or "zequias" being only trenched. In the well-made cemented square channels very little is actually lost.*

Taxes.

Cleared lands.

Taxes amount to 25 per cent. in all on the produce. In the island of Canary land is now entirely proprietary. The State retains none, it having been nearly all divided among the conquerors of the island, and the remainder given to various victorious generals on account of eminent service in the field. It has been all cleared on the low lands, and no trace remains of the old palm groves except here and there a few fine high palms in the middle of some *finca*. In the centre of the island there still exists the original pine forest, a most valuable property, which is cut down as required. Not much care, however, is given in replacing felled timber.

The clearing away of so much wood has undoubtedly rendered

* The price of water varies from 90s. to 300s. per day of 12 hours for a 5-inch square lead or outlet.

this island much drier than in ancient times, which is proved by the deep watercourses and water-scoured hills. It has at the same time made the climate better for the invalid, though the farmer owner of to-day would like a little more water.

Rain now never falls in any large quantities between March and November, and very little indeed during December, January, and February, except in the upland districts. The arable land has mostly been reclaimed from the alluvial deposits at the bottom of the *barrancos* caused by the washings from the higher lands. These reclaimed grounds have been walled in and protected from the winter streams, and are the richest properties in the island. The stones for walling in were got from the same *barranco* bottom, and the work was very cheaply carried out.

During the cochineal boom the great price obtained for the insect induced the Canary agriculturist to terrace whole mountain sides, the result to-day, when cochineal is a semi-extinct industry, being that good farms rise like steps right up the mountain sides as far up as any water can be obtained or led. No available corner is missed, and still the people when not occupied in active farm work continue making land as fast as they can. As the top land of each terrace is nearly level, it results that one half must be cut out of the hill and the other half built out. As stones are a very prolific crop on all Canary land, the material for the "dry stone dykes" which form the bearing walls is costless, and the remainder of the stones blasted out of the rock or found on the land form the bottom layers of the part of the terrace which is built out from the hillsides.

Manure, both natural and artificial, is very extensively employed all over the island, the artificial being sold at about 10s. per 100 lbs. laid down here, and the import tables show that the money spent abroad in the purchase of ingredients, including freight, amounts to over 27,000*l.* in two years. These ingredients are prepared here by merchants who compound the different mixtures for the various soils, and sell them on credit, to be paid for when the crop is gathered. These merchants are generally the contractors for the crop. The artificial manures are most largely used in farms devoted to the cultivation of sugarcane and bananas, the nature of this cultivation not permitting of a green crop being planted during the year to provide fodder for the animals sufficient to produce natural dressing. Manuring.

Ploughing, sowing, and reaping are still in their most primitive stage. The plough in use is the old Eastern one, a wooden bent branch iron shod, the whole of which a man carries about the hillsides easily on his shoulders. This is set into a yoke tied with thongs, and resting on a palm-leaf mat, is fastened to the horns of the bullocks or cows, two of which make the team. Ploughing.

These ploughs make very little impression on the earth, and the furrows are formed by simply turning over the top soil, the lower soil being left permanently undisturbed. They seldom make a fold six inches in depth, but are very useful on the hillsides where a heavier plough would meet with great resistance and

would be too heavy to be moved about by one man. The operation of ploughing is generally done by one man who is a peon of the proprietor or by one who owns the team of animals, which are worth 20*l.* to 25*l.* the pair and earn for a day's work, man included, 4*s.* to 6*s.* Some of the cattle maintained by the richer proprietors are magnificent animals of enormous size, and great pride is taken in showing them off.

Sowing. Sowing is done principally by women, who earn from 6*d.* to 9*d.* per day. They use no implements.

Irrigation of fields. The distribution over a ploughed or planted field of irrigation water is the work of peones, who earn from 1*s.* to 1*s.* 6*d.* per day, working from sunrise to sunset, and on the day when water has to come in they must work while the water runs during any of the 24 hours. They go to the reservoir and lead the head of water to the field to be irrigated, banking up the outlets to other farms on the way to prevent waste or loss of the water. Arrived at their own land, they admit the stream into a main drain or double furrow, and the water is distributed over the land. When one considers that water is often worth 15*l.* a day in summer and all the labour of leading it in in addition, it proves how valuable the land is which has water of its own.

Cleaning and weeding. Cleaning and weeding are done by women generally under the direction of a peon or the small farmer. If two gangs work in the same field they generally do so at some distance from each other, possibly to check the amount of work done by each gang.

Reaping. Reaping when the crop is only broadcast sown on unwatered land, and is a thin one, is simply performed by pulling the grain up by the roots. When the crop is a heavy one a very light reaping-hook is used, curved round a complete half-circle and very thin. For maize a "machete" or knife is used for cutting down after the pods have been removed. When all has been cut down and carried in on mules, which if hired cost 2*s.* each per day (a man working two of them gives his labour free), it is laid out on a flat round threshing floor in the open air. This is generally placed alongside or in front of the farmhouse on an exposed surface and paved with large flat stones. Here the horses, mules, and sometimes oxen are turned in and driven around to tread out the grain and break up the straw. Then they draw round, over, and across the straw and grain, a sort of wooden flat truck without wheels, bound with iron, and studded all over the bottom with smooth round stones. A young lad generally sits on this, driving the mules round. The grain, chaff, and straw having been separated by being pitchforked up into the air on a breezy day, the grain is stored, and the straw is packed into huge netted panniers, to be sold in town at about 10*s.* the mule load in ordinary years. Last year the price has been as high as 15*s.* to 16*s.* When maize has to be husked friends come from all the farms around and form a kind of great picnic, all husking away together throughout the day as quickly as they can. These visits are repaid all round until the work is complete. The degrading of the maize is done in American machines, which do their work well and economically.

Threshing.

The cleaning of all grains is generally done in fanning machines made in England.

Sugarcane is cut down once a year, and the dried refuse burned Sugar. over the same ground which is then manured, and irrigated, and the cane allowed to spring up until ripe. The young tops are first cut off for fodder, and the cane then sent to the mills in carts drawn by two, four, or six oxen, the loads sometimes reaching to 6 or 8 tons. This heavy packing of the carts, done to save many journeys by the slow-moving cattle, cuts the roads to pieces; and what were a few years ago beautifully made and kept roads are now, through this practice of loading enormous weights on narrow $2\frac{1}{2}$ to 3-inch wide wheels, full of ruts, and an infliction to those who have to use them.

The yield from the sugarcane in ordinary years is about $5\frac{1}{2}$ Yield. per cent., and by double crushing $6\frac{1}{2}$ to 7 per cent. may be obtained. This year, however, the return has been considerably below the average owing to want of rain, as, no matter how well and thoroughly a crop may have been irrigated, it never makes up for the loss of natural rain, which seems to produce a higher percentage of sugar than the best of irrigation does.

The greatest amount of labour is naturally employed at the time of the "zafra," or cutting of the cane, but the bulk of those employed are women, and the wages these earn do not appreciably increase, as the farms are cut down in turn, and the supply of labour is always in excess of the demand, the mills not being able to take in more than they can crush. The wages of these women very often do not exceed the amount of maize necessary to make the week's *gofio* for themselves and children. Payment in kind in this way is very common, especially on the north-west and west coasts.

Nearly all the machinery comes from England and is of a very Machinery. heavy order, the four best mills being fitted up with every latest appliance to increase output and give the highest percentage of sugar results.

Mills are not the property of the estate owners in this country, but are separate enterprises by capitalists who buy the cane under contract, at about 2 pesetas per 100 lbs., from the growers. Canes last for about seven years without being planted afresh.

The vintage generally begins in the first week of September. Vines. The process of handling the grapes is very interesting, if in some operations not quite cleanly. No care is taken in gathering the grapes, which, ripe and unripe, crushed and sulphury, are thrown pell-mell into baskets. These are conveyed on mules to the presses, where they are emptied into a kind of "cuba," or great square tank, and trodden out by the feet of the peones or hired men.

The grapes are piled up in the centre of the tank into the form of a cone, and a heavy cable laid round them; and the press, with its great old-fashioned, and often richly-carved screw comes down and squeezes as much as possible of the juice out. From this tank the juice and a portion of pulp are allowed to run into

a small one on a lower level, whence in modern presses it is pumped into a great vat, but in the older places goes directly to the "musto" pipes, there to get through the first fermentation. When the fermentation dies off, and the wine is pumped or run off into other pipes and lunged down, the utmost care is taken to preserve the bodegas from all foreign smells or anything that might damage the wine. In March the vintage is ready as new wine, but it is not recommended for use until the next year's vintage is ready.

It seems certain that genuine Canary wine does not keep well beyond two or three years, and the flavour is very rough owing to the careless gathering. The grapes when plucked are very ripe and swollen, and the centre grapes of each bunch get consequently crushed and mouldy, and the sulphur used in keeping down the blight gets into the mass. No care is taken to clean any of this, and the sticks, the dirty sulphur, and the mouldy, green, and crushed fruit go all together into the press. There has lately been a large importation of Catalan wines into Canary. These are only worth about a quarter of the value of the native wine, and a good deal has been worked into the Canary wine by intelligent manipulators, for whose purposes the real article was too expensive.

The cheap wine of Lanzarote, a fine sound light white wine of very low graduation, is also much used in giving flavour to the mixture. This blending received a check when the import dues on spirits were raised, and a good many small wine-makers had to supply the real wine, which often, though much more sound than the doctored wine, was not half so palatable.

Bananas.

The banana plantations are first laid out by planting young plants about 2 *varas* apart, and it takes about 18 months to obtain the first return. They require a good amount of water and keeping clean. After a plantation once begins to bear, after each bunch is cut down the parent stem has to go likewise to enable the young plant to come up and take its place. Before the bunch is removed from the plant it is usually "marked" by the foreman or contractor himself in order to be cut at the next lopping. Two days before the homeward steamer is due it is cut down, carefully wrapped in a felt blanket or mat, and bound round by decayed banana leaves, or "banana straw" as it is named. The fruit is conveyed to the packing warehouse, to be there carefully packed in crates or baskets for shipment. These are carted from Banaderos, Telde, San José, and the town warehouses to the port, three to four miles distant from the town, and placed on board lighters ready to be shipped.

The bananas cost from 1s. 4d. to 2s. a bunch according to quality, and some very special fine bunches are worth 3s. The freight is about 1s. to Liverpool and 2s. to London. As bananas grow over 1,000 to 1,200 bunches and sometimes more in old gardens, the average gross return from the land is from 90l. to 100l. per acre. Very little labour is required beyond the carriage on mules to the road and cartage to town, cartage costing 6s. per day, and mules 2s. each per day.

Tomatoes, a rotation crop with maize and another green crop, Tomatoes. are considered the best paying of all crops, though they suffer a good deal from disease—a kind of mildew which kills the plants entirely after first blackening them all over.

The plants are grown from seed in beds and are, when sufficiently strong, removed and planted out in the gardens, where they are watered, pruned away on the lower branches, sprayed, and tended very carefully until ripe. The trade of growing is now nearly all in the hands of contractors.

The return from an acre may be variously calculated according to the class of land and water supply, but runs from 500 to 750 quintals and over of 100 lbs. each to the acre. Of this about one-third or more ought to be taken by the consignees' contractor. On the average 200 to 250 quintals pass muster on good land, and the grower gets from 5s. to 10s. per 100 lbs. for the delivery, selling the surplus in the market at 3s. per 100 lbs., so that an acre of land in a fair year will give over 100*l*.

The freight to England is about 15s. to 20s. per ton measurement of about 12 cwts. The English prices of the fruit are published day by day in the Covent Garden catalogues.

Potatoes are grown as a rotation crop (two or three during Potatoes. the year according to position), the others being generally maize or bearded wheat.

The seed potatoes for such as are intended to go to England are sent from there of the class most in demand. They are given out to the grower, who gives labour and land and contracts to deliver the entire produce of the potatoes grown from the seeds entrusted to him, carefully selected into sizes in boxes (found by the buyer) ready for shipment at 4s. per 100 lbs. delivery, March to May. The cultivation is the same as in England, and the contractor merely transmits the potatoes to the auction room. The usual freight is 15s. to 20s. per ton weight.

Various attempts have from time to time been made to intro- Implements. duce modern appliances into the cultivation of these islands, but so strong has been the resistance of the labouring class that they have had to be abandoned.

An Englishman very much interested in flower and kitchen gardening had the utmost difficulty at first in inducing his man to use a Canterbury hoe to break up the grounds, although the man saw its utility, and to get a Spaniard to delve with an English spade, using his foot as a purchase, is almost impossible, as it is quite against his inclination, seeing that he must bend his back, and if attempted he will be found returning to his own implements the moment one's back is turned.

The Canary Island farmer is a very intelligent hard-working Canary farmers. man, and the labourers are, both male and female, splendid specimens of their class, working on steadfastly under a broiling sun from sunrise to sunset, with two hours for meals, for, in the case of men, 1s. to 1s. 6*d*. per day, and women in some districts toil week in, week out, from morn till night, for a bare subsistence, 6*d*.

a day, and in many cases nothing beyond a bag of ground *gofio* weekly.

The cost of labour hired for the purpose is very small in Canary, as the tillage is usually managed by the family or relatives of the small farmer, who works when not independent as "medianero," or middleman, on half-shares with the landowner.

For hired labour, provided all is hired, the expenses are on rotation land 3*l.* to 4*l.* per acre. In the case of tomatoes, sugar-cane, and irrigated bananas the expenses run up to 20*l.* to 30*l.* per acre.

Diseases in
plants.

The diseases which are found in the crops here are known by the names of:—

Oruga.—A small pernicious worm that eats everything up.

Oidion.—Blight.

Purgones.—A small black insect that curls up in the blade.

Maleza.—A kind of mildew, the exact nature of which is unknown. It is a tomato disease in the first instance, and an attack comes on suddenly, often in one night.

The orugas and purgones are left to themselves. For the oidion sulphur is generally used, and the maleza is combatted with a preparation of copper in some places, and in others by various private remedies. The oidion was the cause of the loss of the old Canary wine grapes.

Seasons.

The last five years have been only very moderate on the whole, in consequence of want of rains in some districts, too much in others; but unfortunately there are no statistics prepared by the Government to enable one to follow out annually the progress or decay of the agricultural interest or the direction to which it tends.

Winds.

The prevailing winds in the islands are northerly, and they do no harm to the crops generally. The wind which causes most destruction is the southerly wind, which is prevalent at some periods of the winter when the tomatoes are coming on. This wind shrivels up everything sappy, and causes the leaves to drop.

During 1895 and the beginning of 1896 these southerly winds have been more prevalent than usual and have caused great damage. They come from the Sahara direction, and when strong bring sand clouds and sometimes locusts. After a day of strong south wind, sometimes an eighth to a quarter of an inch of sand will be deposited in *patios*, gardens, roofs, and rooms if a window is left open. If the locusts effect a lodgment they sometimes require the military to be called out to combat them, when trenches are dug, stretches of cloth put up, and the advancing swarm beaten into the trench and covered in. These south winds are equally disastrous to human beings as to plants, and cause fevers to be prevalent while they last, especially a kind of low malaria which is very weakening. They also are very bad for people with "throats." To some "lungy" visitors they come as a great blessing, making them feel quite dried up inside, provided

they are not too far gone and feel prostrated by the close damp heat.

The cactus is not now cultivated as it used to be formerly, *Cactus*. though it is still allowed to remain growing on waste lands. The lands on which it grows are fit for nothing else in most cases, although in Galdar, Arucas, and Quincunar some good land is under cochineal. True, it is somewhat short of water, but good producing land. The price here is from $9\frac{1}{2}d.$ to $10\frac{1}{2}d.$ per lb. It would be a great thing if a rise in price were to take place, and the dry lands on the hillsides could once more produce a remunerative crop.

Statistics extracted from official documents:—Land under *Statistics*. irrigation, 860 fanegadas (about 1,200 acres); cereals, 1,965 fanegadas (2,750 acres); vines, 750 fanegadas (1,050 acres); pasture, 1,500 fanegadas (2,100 acres); fruit trees, 40 fanegadas (65 acres); covered by buildings, 200,000 square metres; *barrancos*, roads, quarries, and unproductive land, 8,000 fanegadas (11,200 acres).

The proprietors number 560 Spaniards and 7 foreigners. Houses are owned by foreigners in the proportion of about 1 in 200.

The value of irrigated land to purchase with the required water is, according to quality, 12,000 to 24,000 pesetas per fanegada (9,500 to 17,000 pesetas per acre), and rentals from 375 to 1,000 pesetas annually for the same measure ($1\frac{1}{2}$ acres). When the supply of water is insufficient it is bought from water landlords, generally twice monthly, the price being from 3 to 15 pesetas per hour of 5 inches square lead in summer, and about 1 peseta 25 c. in winter.

Land for cereals is worth to buy 50 to 500 pesetas per fanegada, land under vines 2,000 to 5,000 pesetas and upwards, according to position.

Irrigated land under bananas produces about 800 to 850 exportable bunches and 400 to 500 others; the others are sold in the market at from 50 c. to 1 peseta 25 c. each.

For the purposes of the Government valuation, land of the best class has been calculated in the registers for the last 30 years to return a clear net profit of 633 pesetas, or about half its real value under bananas or tomatoes.

Dry land, for which water must be bought, appears as worth from 2 to 40 pesetas, and under vines from 35 to 75 pesetas, according to the zone of cultivation and class of soil, generally lava ash, which holds the winter rain throughout the summer at the depth of a few inches.

Taxation is paid in agricultural produce; covering all taxes, it amounts to 25 per cent. of the product.

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409. <i>Russia</i> .—Report on the Nijni Novgorod Exhibition, 1896	1½d.
410. <i>Belgium</i> .—Report on the Herstal Arms Factory	1d.
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412. <i>Belgium</i> .—Report on the Metallurgical Industries of the Province of Liège during 1895	1d.
413. <i>Germany</i> .—Report on the Finances of the German African Colonies for 1897-98	1d.
414. <i>Germany</i> .—Report on Molasses and Peat Fodder	1d.
415. <i>China</i> .—Report on the Revenue and Expenditure of the Chinese Empire	3d.
416. <i>Russia</i> .—Report on the Drink Question in Russia	1d.
417. <i>Italy</i> .—Report on the Economic and Financial Situation in Italy	4d.
418. <i>Germany</i> .—Report on the Operation of the Insurance Laws for 1895	1d.
419. <i>Netherlands</i> .—Report on the German Competition with British manufactures in the Netherlands	1d.
420. <i>Germany</i> .—Report on the Wine Trade of Germany, 1895-96	1d.
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422. <i>Netherlands</i> .—Report on the Gold Industry of Dutch Guiana	5½d.
423. <i>United States</i> .—Report on the Prospects of Farmers in the State of California	1d.
424. <i>Italy</i> .—Report on the Straw Hat Industry of Tuscany	1d.
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426. <i>United States</i> .—Report on American Tin-plate Industry and the Welsh Tin-plate Export Trade to the United States	1½d.
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429. <i>France</i> .—Report on the Rennes Exhibition of 1897	1½d.
430. <i>Italy</i> .—Report on the Sponge and Oyster Industries of Southern Italy	1½d.
431. <i>Italy</i> .—Report on the Cultivation of the Carob Tree	1½d.
432. <i>Germany</i> .—Report on the German Colonies in Africa and the Southern Pacific	2½d.
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434. <i>Germany</i> .—Report on the Association for the Promotion of Foreign Commercial Relations with Stettin	1d.
435. <i>Argentine Republic</i> .—Report on Immigration to the Argentine Republic	1½d.
436. <i>Germany</i> .—Memorandum on German Trade, January to September, 1897, as compared with British Trade for the same period	1½d.
437. <i>Belgium</i> .—Report on the Coal Mining Industry of Liège during 1896	1½d.
438. <i>Italy</i> .—Report on the Cultivation of the Olive in Italy	1d.

SWEDEN.

STOCKHOLM.

Mr. Pakenham to the Marquess of Salisbury.

(Received at Foreign Office, December 2, 1897.)

My Lord,

I HAVE the honour to forward to your Lordship herewith a Report on the Dairy Industry of Sweden, which has been drawn up by Mr. Arthur Herbert, First Secretary to Her Majesty's Legation.

I have, &c.
(Signed) F. PAKENHAM.

Mr. Herbert to Mr. Pakenham.

Sir,

Stockholm, November 27, 1897.

IN July last about 100 members of the "British Dairy Farmers' Association" visited Sweden in order to see for themselves the position of the Dairy Industry, and the high state of perfection to which this branch of agriculture has been brought.

Their visit was necessarily of short duration, and I think that being so hospitably entertained as they were, they had hardly sufficient time at their disposal to make a study of the difference between the Swedish and British systems of dairying, and the reasons why, notwithstanding the difficulties of climate, and unaided by the State, except for a small subvention, dairymen in this country have been able in a comparatively short time, not only to face Danish competition in the English market, but even to make for themselves there a market of their own.

These reasons I have attempted, in as brief a space as possible, to point out in the accompanying Report in the hope that it may prove of interest, not only to those members of the "British Dairy Farmers' Association" who were here, but also to the British agricultural community generally.

I have, &c.
(Signed) ARTHUR HERBERT.

Report on the Dairy Industry of Sweden, with Appendices.

APPENDICES.

- I.—The Agricultural and Dairy College at Alnarp.
- II.—The Royal Agricultural College at Ultuna, near Upsala.
- III.—Particulars of three small Swedish farms near Alnarp.
- IV.—Stockholm Milk Supply Company.
- V.—Tuberculosis experiments at Hamra, belonging to the Alfa-Laval Separator Company.

In order to fully appreciate the importance of the dairy industry to Sweden it is necessary to take into consideration that the item of dairy produce figures as second in value on her list of exports.

The area of Great Britain and Ireland is 120,600 square miles, and of Sweden 169,300 square miles; but of the total land area only about 11½ per cent. is under cultivation or meadow-land:—

					Great Britain and Ireland.	Sweden.
Population	..	..	..	..	85,200,000	5,000,000
Cattle	..	..	..	..	10,942,000	2,600,000
Sheep	..	..	..	..	30,853,000	1,400,000
Pigs	..	..	..	..	4,301,300	800,000
Horses	..	..	..	..	2,100,000	550,000

Value of the
milk pro-
duction of
Great Britain
and Sweden
respectively.

The value of the milk production of Great Britain at 5*d.* per gallon is said to be worth 33,000,000*l.*, calculating 400 gallons per cow a year (1,800 litres) on 3,959,000 head.

That of Sweden at 4½*d.* per gallon would amount to 9,844,000*l.*, calculating 350 gallons per cow on 1,500,000 head.

It is calculated that about three-fifths (2,986,000) of the population get their living by agriculture in Sweden, against a proportion a little short of that number in Great Britain and Ireland.

Number of
dairies.

Besides the small dairies which make butter and cheese for home or local wants, there are in Sweden 1,800 large dairies. 1,420 of these are devoted to butter-making only, and at 170 both butter and cheese are manufactured. At the remaining 210 dairies only cheese is made.

The dairies are divided into four classes:—(1) 625 "estate" dairies, which only deal with their own milk (809, in 1892). (2) 320 estate dairy factories which deal with their own and purchased milk. (3) 515 dairy factories, which purchase all their milk (610, in 1892). (4) 340 co-operative dairies (73, in 1892).

In 1896, about 800,000,000 kilos. (about 175,000,000 gallons) of milk was converted into butter and cheese, producing:—

						Quantity.
						Cwts.
Butter	..	..	..	..	..	512,000
Whole milk cheese	..	..	..	..	..	50,000
Half	..	..	..	..	..	15,000
Skim	..	..	..	..	..	80,000

The greater part of the butter is exported to England, partly by water direct, and partly through Denmark. (For details, see below.)

In order to watch over the Swedish butter trade in England, the Government has a Dairy Agent established in Manchester, to whose annual Report to the Swedish Government I am indebted for a number of the figures I have quoted.

The cheese is mostly consumed in Sweden, only a small quantity being exported. The export of cheese has been :—

Cheese.
Export.

Year.						Quantity.
						Cwts.
1894	..	..	..	..	..	1,675
1895	..	..	..	..	..	2,453
1896	..	..	..	..	..	2,891

Butter and cheese are imported, but to a small extent, as the following figures will show :—

Year.						Quantity.	
						Butter.	Cheese.
						Cwts.	Cwts.
1894	..	..	..	..	..	16,137	4,672
1895	..	..	..	..	..	13,085	4,100
1896	..	..	..	..	..	15,874	4,703

Most dairies use steam-power Alfa-Laval cream separators for skimming the milk, but some of them still adopt the system of Mr. Swartz (milk-setting in ice-water). In all exporting dairies the cream is pasteurised, in order to keep the butter perfectly good. In most instances the cream is soured with butter milk or pure cultures. The butter is churned in Holstein churns, and generally packed in casks, though some dairies pack it in rolls. The butter is sent once a week to butter merchants in Malmö or Gothenburg, and in the hot season it is forwarded in ice-cooled wagons.

The co-operative dairies are the largest, the number of their members amounting sometimes to over 400. Some of these dairies

treat 1,200 to 3,300 gallons of milk a day, and the largest 4,000 gallons a day. Men are generally employed, the women working the butter and washing, but a few dairies are entirely run by women.

Butter.

The importance of the dairy industry of Sweden may be gauged by the fact that in 1895 there was exported :—

BUTTER.

To—				Quantity.	Value.
				Tons.	£
Norway	..	..	..	335	33,500
Denmark	..	..	..	8,270	820,000
Great Britain	..	..	..	15,450	1,540,000
Total	..	..	..	..	2,393,500

And this amount was still further increased in 1896, but details are yet wanting.

Total import
of dairy
produce to
England.

The total value of the importation of dairy produce to England in 1896 was:—

Total Imports to England.				Of which from Sweden (direct Importation).	
		Quantity.	Value.	Quantity.	Value.
		Cwts.	£	Cwts.	£
Butter	..	3,087,947	15,344,083	323,329	1,664,111
Margarine	..	925,934	2,948,425	45	..
Cheese	..	2,244,585	4,800,000	16	..
Bacon	..	6,568,688	11,969,811	140,000	300,000
		Great hundreds.		Great hundreds.	
Eggs	..	13,244,893	4,184,567	19,445	7,000

It is reckoned that, in 1895, the average consumption of eggs per head of the population in England was 39.

Swedish eggs are small, weighing from 13 to 15 lbs. per 120 eggs. These are generally sent to England, the larger eggs being sent to Denmark. The average price for Swedish eggs in England in 1896 was 7s. 9d. per 120. Sweden is third on the list for the importation of butter to England, France and Denmark alone being ahead, the former with a total of 467,600 cwts., and the latter with 1,228,784 cwts. In the Danish total, however, is included a certain amount of Swedish, Russian, Finnish, and German butter, of which I do not know the exact proportions, except that 163,003 cwts. were of Swedish origin, or presumably the whole of the Swedish export to Denmark.

The total importation of butter to England has increased from

a total value of 8,016,000*l.* in 1887 to 15,344,000*l.* in 1896. The average price for direct imported Swedish butter in 1896 was, 5*l.* 8*s.* 3*d.* per cwt.

Dairy instruction is undertaken by one higher dairy school for Dairy experts, one lower dairy school for men, seven dairy schools for teaching. women, 24 dairy stations for women, besides the instruction given by the Agricultural Colleges of Alnarp and Ultuna (see Appendices I and II).

At the cost of the Government, a Chief Dairy Inspector is maintained, and in every county there is a dairy expert stationed, whose duty it is to travel about his district, in order to give advice and information respecting dairying. The number of these experts is 23, of whom one is a woman, and they are paid by the agricultural societies of the different counties.

As regards the inspection of butter, the amount of funds Inspection. available on this account is 26,500 kr., composed as follows:—

					Amount.
					Kronor.
From the State	..	..	..	..	10,000
„ town of Malmö	..	..	..	..	1,000
„ „ Gothenburg	..	..	..	..	500
Subscriptions from 300 dairies at 50 kr...					15,000
Total	..	..	..	..	26,500
Equivalent in sterling	..	..	..	..	(1,472 <i>l.</i>)

The whole of this sum is spent on analyses, &c., except 3,700 kr. (205*l.*) disbursed for salaries, and the hire of the necessary buildings at Gothenburg. In order the better to control the quality of butter exported, there are every year in Gothenburg and Malmö 20 control butter judgments, to which dairies have to send a cask of butter immediately on receipt of notice to do so.

According to Section 28 of the Law of September 25, 1874, it is the duty of the communal authorities to devote special attention, that everything that may have a bad influence on health within the commune be removed, and this includes the sanitary inspection of dairies if thought necessary. This is further strengthened by the Law of October 31, 1890.

As regards the adulteration of food-stuffs with any ingredient injurious to health, the Law of February 14, 1864, decrees that the penalty shall be hard labour of from two to six years. Should death ensue from such adulteration, the penalty is increased, from 10 years to imprisonment for life. The local doctors appointed by the State or commune are also authorised to inspect dairies, and report should any unsanitary condition be found in them.

One important point in the Swedish dairy system, to which I would draw attention, is that, owing to the “factory system” being largely in force, it is possible thoroughly to “pasteurise”

the milk. Without this being done there is no certainty that pure butter will result, and this danger does not exist in Swedish butter owing to the thoroughness with which the operation is conducted.

Profits of
co-operative
dairies not
taxed.

The profits of co-operative dairies are not taxed, because these institutions are not considered to form a separate business, or trade, apart from the farms which contribute to their produce. In regard to the co-operative dairies, it may be stated that the farmers generally take back all skim and butter milk, which is used for feeding calves and fattening pigs. Some dairies, however, keep calves and pigs, in order to utilise the by-products. A certain proportion of the skim milk is used for cheese making. Such ideas as the following, for getting rid of skim milk, do not seem to have found much favour in Sweden:—

“At York, in 1883, two prizes of 50*l.* each were offered for dairies suitable for butter and cheese making respectively. There were, however, no entries in the cheese making class, and only two butter making dairies. These were erected and equipped by Mr. Edward Ahlborn and Messrs. Thomas Bradford and Co., and the judges awarded the prize to the former. In connection with Mr. Ahlborn's dairy, an apparatus was shown for making ‘sparkling milk,’ or, in other words, for aerating skim milk, which it was claimed might find a sale like ginger beer, at 1*d.* per bottle. The novel idea does not appear to have gone further than the York showyard.”—*R. A. S. Journal*, No. L, Part II., page 717.

Bacon.

In Sweden there are about 800,000 pigs. Bacon is exported principally to England, which, in 1896, amounted to 140,000 cwts.

EXPORT of Farm Produce from Southern Ports of Sweden in 1896.

Port of Shipment.	Butter.	Bacon and Beef.	Eggs.	Live-stock (Cattle and Pigs).
	Cwts.	Cwts.	Score.	Head.
Gothenburg	286,060	30,480*	..	1,356
Stromstad	..	..	462,004	..
Helsingborg	50,600	49,360	62,076	15,161
Landserona	21,580	11,800*	26,745	1,270
Malmö	138,840	62,840	Cwts. 5,960	31,968
Ystad	239	..	Score. 10,115	..
Total	497,319	154,480	560,940	49,755
Equal to	Tons. 24,863	Tons. 7,724	And cwts. 5,960	..

* Bacon only.

The grant of the Government for dairy purposes amounts yearly to about 2,700*l.*, and those of agricultural societies to 5,300*l.* Beyond this, I presume, are the expenses of the agricultural colleges mentioned in Appendices I and II, viz., Ultuna, 2,750*l.*; and Alnarp, 2,080*l.* per annum. In England, the annual grant on account of agricultural education was 6,950*l.* last year, divided among 14 institutions, but in addition to this sum from the central authority, the County Councils of England and Wales have applied about 80,000*l.*, to this particular form of teaching, under the Local Taxation Act of 1890.

Grant of Government for dairy purposes.

I have spoken with several persons here, competent to form an opinion, who have studied agriculture both in this country and in England, and they are of opinion that we do not get enough value for our money in this respect. The chief reason they allege is, that we spend far too much on bricks and mortar, and one of the results is, that the persons who are trained in these establishments are spoiled, and when they go back home are dissatisfied with the appliances which they have to work with, and with their surroundings generally. This is a result, they say, that they are not entirely free from in Sweden, but to a far smaller extent than in England, because they attempt to make their instruction as practical as possible, and to do this oblige their pupils themselves to carry out all the routine of the work of the farm connected with the dairy. Moreover, the application of such large sums to buildings absorbs a considerable amount of capital which might be more profitably employed.

It was stated by a speaker at the Sedgefield Agricultural Show, as reported in the "Times" of September 1, of this year, that "Dairy farmers in this country had a genuine grievance, in the fact, that they were compelled to produce milk and butter, under the best sanitary conditions, and to compete in their own market, with an unlimited amount, made under no kind of sanitary conditions at all."

I have been asked to point out, that this statement is somewhat misleading as regards this country, for it is obviously in the interest of the producers to export as good a quality of butter as possible, in order to compete favourably with other countries, who likewise export to England. In Sweden, it is stated, very great care is taken in the arrangement of the farm buildings, so that the dairy may be placed not actually on the farm yard, as is often done, but on higher ground, whence the water used for washing, &c., may run off easily. The water supply is, from the configuration of the country, always able to be either running water, or well water, but is never taken from a tank. If only for the reason that butter forms such a large item in the list of exports, every care would seem to be taken to produce for export a high class of butter, of uniform quality, under proper hygienic conditions. The maintenance of a good demand in foreign markets is such a very important matter, that I feel sure that were any defect in the control detected and reported, it would at once be remedied by the competent authorities.

According to official statistics, 18,307 analyses of milk were made in England in 1896, of which 11 per cent. or 2,030 samples were found to be adulterated. Of this total of adulterated samples 19½ per cent. were from London.

As to butter 7,106 cases, from all parts, were analysed, and 8·2 per cent. were adulterated, nearly always with margarine.

A short time ago the newspapers mentioned the prevalence of colouring butter with aniline dye, which it was said had been introduced by a German firm, and had obtained favour owing to its cheapness. On enquiry, however, I have ascertained that the chief colouring matters used are Barnekow's or Hansen's, which are vegetable and harmless, and that the inspectors are particularly on the look-out for this form of adulteration, which I was informed does not exist in the exported butter, which is made in large quantities in factories, and should aniline colouring matter be used, it would be only on small farms where a small saving would be an object, and whence the butter would be disposed of in small quantities, to private individuals, or in the local market.

Conclusion.

Foreign butter wins its way, because it is generally of good and uniform quality, at least that is the case with the Swedish butter, owing to the fact that the methods of production are always reaching a higher degree of perfection. Cheapness is brought about, not because the value of land is less in Sweden than in Great Britain, or because the climate is better, or because the other expenses of an agriculturist's business compare favourably with our own. The reason must be sought in their co-operative methods of manufacture which effect very great economies, and it is here that the British agriculturist who does not understand how profit can be made out of Swedish butter at the price it is sold, must look for the explanation, coupled with the fact of the thoroughness of the agricultural technical education in this country.

I have also received complaints that Swedish butter is not sold as such, but is generally called Danish or Normandy, or any other the salesman may fancy. If there is no other change, however, beyond that of name, the consumer may, I suppose, consider himself fortunate.

Appendix I.—THE State Agricultural and Dairy College of Alnarp, by Dr. Engstrom, of the College.

The design of the institution is to give theoretical and practical information in agriculture, dairying, and kindred branches. It includes the following divisions or colleges:—

1. A higher agricultural college.
2. A lower agricultural school.
3. A higher dairy college.
4. A lower dairy school for men.
5. A lower dairy school for women.
6. A gardening college (horticulture).
7. A farriery school.

1. *The Higher Agricultural College*.—The course is two years, theoretic instruction (lectures) preponderating, in combination with exercises and demonstrations in laboratories, stables, and dairy, in the fields, &c.

All the students live at the academy, and pay for instruction, board, and lodging during the course (two years), 1,350 kr. (75*l.*). The number of students is about 40.

2. *The Lower Agricultural School*.—The course is one to two years. The students take part in all the work at the farm during the first year every day, and during the second year from April 1 to October 20. During the first year instruction is given in the evening in counting, writing, and the Swedish language; during the second year—when the students are free from practical work from November 1 till April 1—short theoretic instruction is given in the following subjects: chemistry, physics, geology, geometry, agriculture, breeds and breeding, veterinary science, hippology, farriery, plant life, sylviculture, horticulture, and book-keeping.

All the students get instruction, board and lodging free of cost.

Persons who are more exercised in practical agriculture are allowed to partake of the course of the second year. They pay for lodging and instruction 100 kr. (5*l.* 10*s.*) for the course, and for board 27 kr. (1*l.* 10*s.*) for the month. The number of students, 44, of whom 24 are free students.

3. *The Higher Dairy School* is for intending dairy experts and instructors. The course is one year, open only to those who have passed through the higher agricultural college, and thereafter have practised one year with dairy work.

The instruction is given in lectures in: (1) The chemistry of milk, and physics; (2) milk-testing; (3) dairying; (4) bacteriology; (5) breeds and breeding, food, and feeding of cattle and swine; (6) hygiene and diseases of cattle; (7) engineering; (8) agricultural and dairy architecture. Besides, the students have exercises in: (1) dairy work; (2) butter judging by a butter merchant; (3) analysing milk and dairy produce, chemical and bacteriological; (4) microscopical, botanical, and bacteriological researches of foods; (5) design and estimate of dairy and farm

buildings; (6) management of cattle and swine; (7) dairy and cattle book-keeping.

The students pay for instruction in the course, board and lodging, 600 kr. (33*l.* 6*s.* 8*d.*). The number of students is six.

4. *The Lower Dairy School for Men* is for foremen for larger dairies; the course is one year. Qualification for entrance: Good knowledge of arithmetic, writing, and the Swedish language, and at least one year's practical work in a larger dairy.

The instruction is given in lectures and examinations, and includes: (1) Chemistry; (2) physics; (3) chemistry, physiology, and bacteriology of milk; (4) dairying; (5) breeds and breeding, and foods and feeding of cattle and swine; (6) engineering; and (7) agricultural and dairy architecture; besides exercises in dairy work and management of cattle, milk-testing, butter-judging, drawing, and book-keeping. The cost for instruction in the course, with board and lodging, is 400 kr. (22*l.* 5*s.*). The number of students six.

5. *The Lower Dairy School for Women* is for the instruction of dairy-women, and is kept up by the Agricultural Society of Malmöhus län (county of Malmö). The course is two years. During this time they receive in two or three larger dairies practical exercise in dairy work extending over one and three-quarters years; thereafter, in the end of the course, they stay three months at the College of Alnarp. There they get theoretical instruction in the composition of the milk, its qualities, the correct management and testing of milk, production of butter and cheese, engineering, butter-judging, and book-keeping. The women get food, instruction, and lodging free of cost, and receive for each year 50 kr. (2*l.* 15*s.*) for work dresses.

In the dairy it is only the milk from the college farm which is handled, and all the dairy work is done by the students, under the direction of an instructor. The students are dressed in particular work-dresses of white wash-cloth.

The quantity of milk received daily is on an average 1,600 kilos. (350 gallons). The milk is principally made into butter. The evening milk is kept cooled in large vats during the night, and is skimmed together with the morning milk in an "Alfa I" separator. Before the skimming the milk is pasteurised in a separator scalded to 75° to 80° C. (167° to 176° Fahr.). The cream is cooled in a cooler to 15° C. (59° Fahr.), and thereafter in ice water to 4° C. (39° Fahr.); is heated then to 18° to 20° C. (64° to 68° Fahr.), and is soured with pure cultures, which are prepared daily. The following morning it is churned at 10° to 12° C. (50° to 54° Fahr.) in a Holstein churn, after which the butter is worked on a butter-worker, packed in casks, and sold to merchants in Malmö, who export it to England. The butter is paid for at Copenhagen's top quotation.

The skim milk is used for calves and swine, and is pasteurised immediately after the separation to 90° C. (194° Fahr.) in a particular scalded, into which the skim milk is pumped.

After it is cooled in a cooler to 15° C. (59° Fahr.). A part of

the skim-milk is used for making skim-cheese. The milk then is skimmed at 40° C. (104° Fahr.); and the cream, and the skim-milk which is used for feeding, are pasteurised to the aforesaid temperature. Only during one or two months a year is whole-milk cheese-making practised, the varieties made being "estate" (herregårds) cheese, with large round holes of the size of peas, "Gouda" cheese with small round holes, and Cheddar.

For the whole-milk cheese is paid 6*d.* to 7*d.* per lb. The average percentage of fat in the milk from all the cows a year is about 3·25 per cent. 28 kilos. milk yield 1 kilo. butter (2½ gallons, 1 lb.); 9 to 10 kilos., 1 kilo. whole-milk cheese (0·9 to 1 gallon, 1 lb.); 14 to 15 kilos. skim-milk, 1 kilo. skim-milk cheese (1·4 to 1·5 gallons, 1 lb.).

The college rents a landed property consisting of 567 hectares (1,400 acres). Of these are—

	Hectares.	Acres
Fields (under the plough) ..	360	= 740
Meadows and pasture ..	115	284
Tenants	110	272
Park and grounds ..	42	104

The assessment of the ground is 720,000 kr. (40,000*l.*), and the fire insurance of the buildings 619,000 kr. (34,400*l.*).

The crops of the last year were worth about 12,900 kr. (about 7,200*l.*), and the live-stock about 83,000 kr. (about 4,600*l.*).

The arable land is managed in two portions. The larger, 260 hectares (642 acres), produces:—(1) sugar-beet and potatoes; (2) barley and oats; (3) clover and vetches, peas, beans, and green fodder; (4) wheat, rye, and barley. The smaller, 40 hectares (98 acres), produces:—(1) green fodder; (2) barley; (3) sugar-beet and mangolds; (4) barley.

The crops have been on an average for the last 15 years:—

	Per Hectare.	Per Acre.
	Deciton.	Bushels.
Wheat	33·7	= 57
Rye	28·1	45
Barley	31·2	51
Oats	30·8	68
Potatoes ..	199·8	300
		Tons.
Sugar-beet	420·8	= 17
Mangolds	548·1	22
Carrots	400·0	16
Hay	40 to 50	1·6 to 2

The live-stock is:—34 farm horses, 4 oxen, 5 bulls, 175 milk cows, 80 heifers (not yet calved), 40 young bulls and calves, 200 swine, and 60 sheep.

The cows are principally of Holstein and Frisian breed, or crosses of these two. However, there is a smaller herd of Short-horn and many crosses. The last year there were of milk cows—

34 Shorthorns, which milked on an average 2,260 kilos. (500 gallons), with 3·70 per cent. of fat; 51 Holsteins, 3,180 kilos. (700 gallons), with 3·10 per cent. of fat; 33 Frisians, 3,180 kilos. (700 gallons), with 3·10 per cent. of fat; 57 Crosses, 3,200 kilos. (705 gallons), with 3·35 per cent. of fat; and the milking on an average for the whole stock was 3,140 kilos. (690 gallons), with 3·25 per cent. of fat.

6. *The Horticulture School* teaches, in a course of two years, gardeners, practically and theoretically. The number of students, 12.

7. *The Farriery School* is for the instruction of farriers, in three courses every year, and each course continues three months. In each course 25 students.

The college has a yearly grant from the Government of 37,400 kr. (2,080*l.*), but pays a rent of 14,000 kr. (780*l.*), with all the taxes and other burdens, about 4,000 kr. (225*l.*).

Appendix II. — THE Royal Agricultural College of Ultuna, near Upsala. (Director, Dr. Dannfelt.)

Ultuna is a Royal estate, situated a little south of the old town of Upsala, on both sides of the river Fyris. At the head farm, about 6 kiloms. south of Upsala, is the older of the two Swedish Agricultural Colleges, founded in 1848, as well as a lower agricultural school for farm labourers (Bailiff's School), and a school for herdsmen.

Board of
Government.

The college and lower schools, as well as the management of the college farm, are under the supervision of a board of five governors, appointed by the Government of the country, which board has its regular meetings every third month.

1. — The
college.

The object of the college is to afford higher theoretical instruction in agriculture to young men. There is no practical exercise in farm labours, but the students must before their admittance to the college present a testimonial of their having during at least one whole year had practical exercise in all farm work.

Finances.

The college has a yearly allowance of 49,000 crowns (2,750*l.*) from the State to defray all the costs except for the board of the students, for which they pay 500 crowns (28*l.*) a year apiece.

The fees for instruction and lodging are accounted for to the Royal Exchequer.

There are 11 professors and instructors, viz., in the following subjects:—

Professors.

In agriculture and agricultural economy; in animal husbandry; in inorganic and technical chemistry and geology; in botany, zoology, and horticulture; in organic chemistry, dairying, and bacteriology; in physics, mechanics, mathematics, and

meteorology ; in land surveying, levelling, and practical engineering ; in veterinary medicine and surgery.

In forestry ; in political economy and agricultural law ; and **Instructors.** in book-keeping.

The professors, who are obliged to reside at Ultuna, have a fixed salary of 2,000 to 4,500 crowns (253*l.*) a year and free lodgings ; the instructors a fee of 750 crowns (41*l.*) a year, but no free lodgings, whereas the two first-named of them have other appointments in Upsala, and the third is also book-keeper at the Ultuna farm. One of the professors (usually the professor in agriculture, as is the case at present) is appointed principal of the college.

The college building contains two lecture rooms, museums for **Buildings.** natural history, anatomical laboratory, library, two club rooms, and 50 private rooms for the students--each having one room, to be used as sitting-room and bed room combined.

The laboratory building contains chemical and bacteriological laboratory, and, on the first floor, lodging for the professor in organic chemistry.

The museum building contains the collections of models of implements, and of objects referring to live stock, dairying, agriculture, forestry, and horticulture. The model room is also used for the instruction in drawing. In the midst of the museum building there is a shed containing the collection of older and wooden agricultural implements.

In the old main building and five smaller houses seven of the professors reside, and in one house all the servants are accommodated.

Close to the college building is the little botanical garden, containing about 200 species of plants having economical interest ; the surrounding park forms an arboretum of trees and shrubs enduring the climate. **Botanical garden and experimental field.**

The two experimental fields—one on stiff clay and sand in dry situation, the other on humid loam beside the river—are used by the Swedish Farm Seed Association ("Sveriges utsädes förädlings") for systematic improvement of farm seeds, and contain a great and interesting collection of new varieties of barley, oats, wheat, peas, &c.

There are two classes of students at the college, viz. :—

1. Ordinary students, who intend to pass the complete two **Students.** years' course of studies and the final examination for the diploma.
2. Extraordinary students (generally only two or three) who for a shorter space of time participate in the lectures and exercises of the ordinary pupils in some subjects, but pass no examination and get no testimonial of their studies. There are vacancies occasionally for those who have passed the college course and are enrolled for further studies in subjects belonging to agricultural science.

There are only in-students.

For admission as an ordinary student is required—

Age of at least 18 years.

Admission.

One year's practical exercise in a private husbandry.

Theoretical knowledge in the general school subjects ; most of the students have passed the examination for the University.

Charges.

The ordinary students pay 675 crowns (38*l.*) a year ; the extraordinary students, 75 crowns (4*l.* 4*s.*) a month for instruction, lodging, and board. There are no extra fees for laboratories.

For ordinary students there are four free places ; so that every year two students are admitted, who are free from the charges for instruction, lodging, and board. Among the other students one in every year's course is selected, for whom these fees are defrayed from two private funds.

Also, there are two free places for continued scientific studies, to be disposed of to persons who have with honour passed the examination for the diploma.

Terms and vacations.

The course, which lasts two years, begins November 1 ; at Christmas there is about three weeks' vacation ; the session then lasts to midsummer-time, when it is interrupted by seven weeks' vacation ; and then it is continued to the examination, which takes place about October 27.

There thus are always two classes—the first and second years' class—who mostly are instructed separately.

Instruction.

Instruction is imparted by lectures, exercises (drawing, land surveying, levelling, anatomical dissection, microscopy, and seed control), "rounds" in the stables and the fields, and excursions for agronomic, botanical, and geological studies. In the summer one week's excursion is made with the students of the second year's class in order to visit a number of estates renowned for good husbandry ; all the costs of this excursion are defrayed by the college.

Each student gets a note-book containing detailed information of the college farm, and is obliged to note down in the same his observations in respect of the farm operations, the weather, the growth of the crops, &c. In the said book is also inscribed a summary of the balance for the whole management of the farm, so that the student can overlook each branch of the husbandry.

As a proof of their proficiency, the students at the end of the course have to compose a complete plan for the management of a certain known estate, with detailed calculations for the different parts of the farming. Only in the event of this "culture-plan" being approved, is the student admitted to the final examination, which, with very few exceptions, all undergo.

This examination is pro forma, as the students have previously, during the whole course, been examined in each subject, as the lectures in it are completed.

The ordinary students are obliged to be present at all lectures and exercises ; the extraordinary students only at those for which they have been enrolled.

The space of time allotted to each subject is shown by the following table :—

	Lectures.	Exercises.
Practical mathematics	20	..
Mechanics and physics	52	..
Meteorology	25	..
Inorganic chemistry	50	} 80
Organic chemistry	30	
Chemical technology	25	
Geology	45	..
Botany	100	10
Horticulture	12	..
Zoology	20	..
Veterinary anatomy and physiology	25	17
Exterior of domestic animals	20	..
Veterinary medicine and surgery	30	..
Farriery	15	..
Agronomy	150	10*
Agricultural economy	90	..
Live-stock	80	..
Dairying	65	9
Pisciculture	6	..
Agriculture	6	6
Implements	75	..
Engineering (building, draining, surveying, levelling)	95	..
Drawing	..	80
Forestry	60	..
Political economy	20	..
Law	48	..
Book-keeping	..	40
Total	1,164	252

* Seed control.

In this table only those lectures and exercises are entered which occupy a fixed number of hours, but neither the exercises in surveying and levelling, nor the excursions and "rounds."

The daily work is begun with lectures, 7 to 9 o'clock in the morning during the winter, and 6 to 8 a.m. in the summer. There are 3 to 7 lectures, 3 hours' exercises, and half-hour's "round" in the winter; 2 to 4 lectures, and irregular exercises, excursions, and "rounds" in the summer.

The object of the lower agricultural school is to impart practical skill and efficiency in the performance and arrangement of all farm labours, as well as elementary knowledge in the theory of agriculture and natural science, in this way making competent working farmers and bailiffs. II.—The lower agricultural school.

The course is, above all, practical, and the pupils execute most of the labours of the college farm, for which there are no other labourers, except two bailiffs.

Theoretical instruction is given in—Swedish language, writing, arithmetic, drawing, measurement of lines, surfaces and solid figures, surveying and levelling of fields, natural science, with special reference to agriculture, agronomy, live-stock, dairying, forestry, horticulture, simple economical calculations, especially in relation to different farm labours, book-keeping.

The theoretical lectures take place in the winter between 5.30 and 6.30 a.m., and 6 to 8 in the evening. From 7 a.m. to noon, and from 1 p.m. to 5 p.m., the pupils work on farm. In the summer there are lectures only, as an exception, on rainy days, but otherwise the pupils are at field work the whole of the day, from 5 in the morning to 7 in the evening, with rest for breakfast, 6.30 to 7 a.m., and for dinner, from noon to 1.30 p.m.

The pupils pay no charges, but get free board, lodging, laundry, and instruction; they receive no payment for their work on the farm.

III.—The
herdsman
school.

The object of the herdsman school is to form skilful herdsmen, for which purpose three young men are admitted every year, who, during a two years' course, do all work in the cow-houses, and, in the evening, when the day's work is done, get instruction in writing, arithmetic, breeding and care of live-stock, dairying, veterinary medicine and surgery applied to cattle, and accounts for the same.

IV.—The
college farm.

The school is under the direction of the manager of the farm. The estate of Ultuna consists of three separate farms—the head farm, the Kungsängen (the King's meadow), and Graneberg (the fir-mountain).

The head farm, situated on the west side of the River Fyris, has—

					Acrea.
Arable land..	..	..	..	..	385
Meadow ..	..	..	..	..	95
Pastures ..	..	..	..	..	38
Forest land ..	..	..	..	..	57

Kungsängen, on the east side of the river, at 3 kiloms. distance from the college, consists of—

					Acrea.
Arable land..	..	..	..	..	312
Meadow ..	..	..	..	..	155

At Graneberg there is—

					Acrea.
Arable land..	..	..	..	..	57
Meadow ..	..	..	..	..	75
Pasture ..	..	..	..	..	12.5
Wood ..	..	..	..	..	192

This farm is used as a place for the calves, which stay there from the time when they are weaned till they are served by the bull.

The soil of the head farm consists mostly of a very stiff clay, with few exceptions in dry position, and, the climate being generally very dry in the spring and early summer, and often wet in harvest time, the economical result of this farm varies much from year to year. The winter crops—wheat and rye—generally give good crops, but the summer—corn, barley, and oats, as well as the fields in grass—give often in dry summers a poor return.

The farm is divided into 13 fields. On eight of these, each about 16 hectares (39 acres) in extent, this rotation is followed:—(1) bare fallow, manured with 60 tons farmyard dung; (2) winter rye; (3 to 5) ley of red and alsike clover, timothy; (6) oats, or mixed corn of oats, barley, and peas; (7) bare fallow, that gets 40 tons farmyard dung per hectare; (8) winter wheat. Of artificial manures, only a little super-phosphate is used, as experience has shown that very little effect of artificial manures is to be expected on the heavy clay.

According to the rotation just quoted, one-fourth of the land lies in bare fallow. This is caused by the fact that winter corn, which gives the most even and the highest revenue on the stiff and dry clay, cannot well be cultivated except after a well-managed bare fallow. The soil can bear heavy crops of clover, but the dry and cold spring weather very often destroys the young plants, so that the clover cannot be relied on, but must be mixed with grass.

The rest of the arable land, viz., five fields, about 5.5 hectares (14 acres) each, consists partly of very dry sand, partly of sandy clay. On these fields a five years' rotation is followed, viz.: (1) Potatoes and green vetches, with oats; (2) barley; (3–4) grass (red, alsike, and white clover, timothy); (5) mixed corn. On the farms no roots are cultivated, the soil not being adapted for them. The fodder crops are not sufficient for the stock kept on the farm, but hay, straw, and beetroots are transported here from the Kungsängen farm, where the soil is very well suited for the cultivation of rich fodder crops.

At Kungsängen the soil is a very fertile alluvial clay, rich in humus; the land is level and low, so that it is inundated by the river almost every spring. Sometimes the water stands over the fields so long that the sowing cannot be completed in time to get the corn crops ripe, but generally this land gives rich crops of excellent quality. The following rotation is followed: (1) Bare fallow; (2) rye; (3–6) ley of red and alsike clover, timothy, and meadow fescue; (7) ley oats; (8) mixed corn of oats and barley; (9) roots (mostly beetroots); and (10) barley. Farmyard dung is given to the bare fallow and the roots, and basic slag is very extensively used for most of the corn and root crops.

At the head farm there is one cow-house for 130 full-grown animals, and one for 76 head of young cattle, besides several boxes for calves; at Kungsängen, one house for 70 head; and at Graneberg one house for 28 calves.

During the last four years great care has been taken to keep

the animals free from tuberculosis, which has been very much spread in this herd, as in many others. All the milk given to the calves is steamed in the dairy, and then cooled to blood temperature. When weaned, the calves are injected with tuberculinum, and all that show reaction are slaughtered; of those that do not react, the most go to Graneberg, where they stay one year or a little more, when they are returned to Ultuna. Before leaving Graneberg they are once more tried with tuberculinum, and if there is one that shows reaction it is killed. With the calves that cannot be accommodated at the Graneberg calf-house, but must stay at Ultuna or Kungsängen, the same process is adopted; so that no heifer or young bull is put in the house for young cattle at Ultuna that has not been tried twice with tuberculinum without reaction. Besides this, all the bulls at both the farms, and the cows at Kungsängen are injected every year, and the animals that show reaction are killed, or, if there is no other sign of sickness, transferred to the big cow-house at the head farm. Thus the cow-house at Kungsängen, the house for young cattle at the head farm, and the calf-house at Graneberg are as free from tuberculosis as possible. All the houses are thoroughly disinfected every summer, and great care is taken to get strong and healthy young cattle, so that they can resist the contagion. The calves, heifers, and young bulls are out in the pasture the whole of the summer, and in winter all the cattle get exercise in the farmyards as often as the weather is not too severe.

The average weight of the cows is about 475 kilos.; their milk yield about 2,400 kilos. (530 gallons) per head. The milk contains an average of 3.5 per cent. of fat. All the milk is weighed in the dairy; every tenth day the amount of milk and its quality (per cent. of fatty matter) are determined.

The dairy was built in 1896, fitted with the best machines now in use in the country, and arranged so as to save hand-work as much as possible. The milk is taken in on a platform at the back of the dairy, and weighed before being separated. It is separated in a Laval-Alfa separator every morning; the mid-day and evening milk stand over to the next day, when it is separated. From the weighing vessel it passes over a pasteurising apparatus, where it is heated to about 80 degrees, and from the separator the cream and the skim-milk are cooled on cold water coolers. For the transport the Laval milk pump is used. The cream is soured with sour buttermilk from the last day's churning; when this sour is not good, a new one is procured by letting skim-milk get sour. The souring of the cream takes 20 hours. The churning is performed in a common Holstein churn. The skim-milk is partly sold, partly used for preparing cheese, the latter finding a ready sale at 20 to 25 öre per kilo. when six weeks old.

The skim-milk and whey flow through subterranean pipes of earthenware to the piggery, situated close by on a lower level. The dairy has a steam engine of $4\frac{1}{2}$ horse-power.

To produce one lb. of butter requires an average of 26 lbs. of milk. From the dairy is sold about 10,000 kilos. of butter, which is exported over Gothenburg to England.

There is a flock of about 60 ewes, 5 rams, 60 young sheep, and as many lambs. It is an old Southdown flock, for a time crossed with Oxfordshire, and last year—when the weight had diminished too much—with Shropshire rams.

The ewes give an average of 1·7 to 2 kilos. wool per year. As the price of wool has fallen very low—generally only 160 to 175 öre per kilo.—the revenue of the sheep is very small; but still they are kept, because there are relatively extensive dry pasture grounds that cannot be used but by sheep.

The piggery was built in 1895 between the dairy and the river, Pigs down to which the open yards extend.

There are generally two boars and about 15 breeding sows of Swedish breed, covered with boars of the large Yorkshire variety. The main revenue of the piggery is obtained by selling the farrows when six to eight weeks old, when the price varies from 9 to 12 crowns a-piece.

As will be understood from the foregoing facts, there is at Ultuna a mixed husbandry, giving the pupils of the different establishments there situated ample opportunity for studying farm husbandry as it is managed in the middle parts of Sweden. The character of the economy can best be understood by the proportion in which the different branches contribute to the gross revenue, viz.:—

					Amount.
					£
Corn is sold for about	..	..	..	..	625
Butter, cheese, milk, and beef	..	..	..	..	1,350
Wool and sheep	..	..	..	..	88
Pigs ..	..	..	..	..	107

The net revenue of the whole estate averages from 10,000 to 15,000 crowns (562*l.* to 843*l.*).

Appendix III.—PARTICULARS of Three Small Swedish Farms near Alnarp; and the Co-operative Dairy at Lund.

The Farm of Mr. Ola Siversson in Karstorp.—Area: 60 acres; thereof 6 acres meadows. Rotation: (1) green fodder and oats; (2) wheat; (3) sugar-beet; (4) mixed corn (oats, barley, peas, and vetches); (5) clover; (6) barley; (7) sugar-beet; (8) mixed corn; (9) oats. Assessment: 25,600 kr. (1,420*l.*). Live-stock: 4 work horses, 5 young horses, 12 milk cows (Holstein breed), 5 young cattle, 15 pigs, 5 sheep. The cows milk per diem 125 kilos. (27 gallons), and the milk is sold to a factory for 7½ öre per kilo. (4½*d.* per gallon).

The Farm of Mr. Hans Larsson in Winstorp.—Area: 110 acres; thereof 6 acres pasture. Rotation: (1) green fodder; (2) wheat; (3) sugar-beet; (4) mixed corn (oats, barley, peas, and

vetches); (5 and 6) clover; (7) mixed corn; (8) oats. Assessment: 49,000 kr. (2,720*l.*). Live-stock: 7 work horses, 5 young horses, 1 bull (pure Holstein breed, imported from Holland), 21 milk cows (Holstein breed), 10 young cattle, 15 pigs, 6 sheep. The cows give daily 170 kilos. (40 gallons), which is sold to a factory for 4½*d.* per gallon.

The Farm of Mr. Ola Persson in Karstorp.—Area: 61 acres. Rotation: (1) green fodder; (2) wheat and rye; (3) sugar-beets; (4) mixed corn (oats, barley, peas, and vetches); (5) clover; (6) barley; (7) oats. Assessment: 26,800 kr. (1,490*l.*). Live-stock: 4 work horses, 12 milk cows (Holstein breed), 5 young cattle, 15 pigs, 5 sheep. The cows give 75 kilos. (16½ gallons) milk a day, which is sold to a factory for 4½*d.* per gallon.

All these three farmers are proprietors of the land.

The Co-operative Dairy at Lund, built in 1896, has 170 members. Daily quantity of milk, 11,500 kilos. (2,500 gallons). Sells milk, cream, and butter in Lund, but exports some 40 casks a week to England. Cost of the building, 56,000 kr. (3,100*l.*). Skims the milk by means of two "Alfa II" steam separators, each skimming 400 gallons per hour.

Appendix IV.—THE Stockholm Milk Supply Company.

Was established in 1880 for the purpose of supplying milk and cream to customers in Stockholm. To attain this object a large number of milk-receiving stations were opened in the Stockholm district, where farmers delivered milk from which the cream was separated by the so-called ice method, and whence the milk and cream were despatched to town. Farmers living near enough despatched their milk direct to Stockholm. Later, the company developed into a complete dairy industry, and it was therefore found necessary to build a dairy in Stockholm, and by degrees dairies were established or rented. Nearly all the milk and cream which is sold, and even the cream which is made into butter, are pasteurised by heating up to 150° Fahr., and cooling down with ice water, 40° to 45° Fahr.

The chief dairy of the company is in Stockholm, with a staff of about 150 persons. Stabling for 50 horses is required for delivery of the milk and cream in Stockholm only.

At one time the greater part of the butter was exported to England, but now most of it is sold for consumption in Stockholm. The cheese made is chiefly half-fat cheese, partly Cheddar, and partly so-called "Estate" cheese—imitation Swiss—all of which find a ready sale throughout Sweden.

In order to ensure a steady supply of really good milk to people living in Stockholm (where milk is consumed on a much larger scale than is the case in England, or on the Continent generally), the company 10 years ago acquired a number of dairy farms at a short distance from Stockholm. These farms have an area of 5,880 acres, of which 1,334 acres are

tilled land. Besides draught animals, there are 438 cows and 134 young cattle; and on these farms have also been erected three up-to-date cow-houses for 375 head of cattle, at a cost of over 200,000 kr. (11,250*l.*).

The milk from these farms, which in 1896 amounted to 198,087 gallons, is delivered to customers, partly in sealed jars of about 1 quart, and partly in cans of two to four quarts.

The capital of the company in 1880 was only 36,000 kr. (2,025*l.*); in 1882 it was increased to 90,000 kr. (5,062*l.*); and at the present date it is 625,000 kr. (35,156*l.*), with 150 shareholders.

Appendix V. —TUBERCULOSIS: Experiments for at Hamra.

At the Hamra estate belonging to the Laval Separator Company experiments were begun in, and have continued since 1895, in subjecting cattle to the tuberculin test, and it has been found that injections frequently repeated of tuberculin has caused immunity for a longer or shorter period.

Another trial now going on, is for the determining as to whether tuberculin can be used as a protective. The animal is still under observation, and it will be interesting to learn whether he will re-act for tuberculin or not, and in the latter case whether he is tuberculous or not.

Inspections of the animals for tuberculous are made, as a rule, twice a year. The experiments in regard to the production of milk have here given the following results:—

Breed.	Average Production of the Cows which have been Milked during the Whole Year.		
	Milk Yield.	Butter Fat.	Average.
	Gallons.	Lbs.	Per cent.
Pure Shorthorns	679	249	3·55
Pure Ayrshires.. ..	594	215	3·51
Red and white cattle	742	255	3·33
Miscellaneously bred	654	227	3·37

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REPORT ON THE

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*Presented to both Houses of Parliament by Command of Her Majesty,
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SWEDEN.

Mr. Consul Constable to the Marquess of Salisbury.

(Received at Foreign Office, June 11, 1898.)

My Lord,

Stockholm, June 6, 1898.

I HAVE the honour to report that the Statistical Department of the Swedish Administration has this year issued a publication containing many useful statistics.

It is made up of closely printed tabular statements, intended for reference, and therefore conveys no very definite impression on a cursory reading. But the collection of the information has clearly entailed careful research, and contains much that concerns British industries and interests. I have therefore attempted a selection from this publication, and from a contribution by Herr Sundbärg, Actuary of the Government Statistical Department, to the "Statsvetenskaplig Tidskrift."

Such notes as seemed needful in the way of commentary and explanation have been appended after each table of statistics.

Herr Sundbärg informs me that, though in dealing with such figures complete accuracy is out of the question, the sources from which they have been obtained are the best available, and can always be quoted.

I have, &c.
(Signed) M. S. CONSTABLE.

Report on the Trade and Industries of Great Britain in their Relation to those of Foreign Countries.

The following table (No. 1) shows the output of the principal iron ore producing countries during the period between 1871-75 and 1891-95.

TABLE 1.

Country.	Quantity.			
	1871-75.	1881-85.	1886-90.	1891-95.
	Tons.	Tons.	Tons.	Tons.
Great Britain and Ireland	16,087,000	17,154,000	14,250,000	12,249,000
Germany	5,262,000	8,557,000	10,183,000	11,679,000
United States of America	4,532,000	8,516,000	12,988,000	14,288,000
France	2,651,000	3,018,000	2,850,000	3,651,000
Spain	613,000	4,119,000	5,766,000	5,346,000
Other countries	4,181,000	4,578,000	5,467,000	9,068,000
Total	33,326,000	45,942,000	51,504,000	56,281,000

Thus, during the period between 1871-75 and 1891-95, the annual production of iron ore in Great Britain and Ireland is estimated to have decreased from 16,087,000 to 12,249,000 tons. On the other hand Germany's output of iron ore has more than doubled within the same period, and that of Spain increased nearly ninefold. The production of the United States, which for 1871-75 was estimated at a yearly average of 4,532,000 tons, has increased during the period between 1891-95 to a yearly average of 14,288,000 tons.

Sweden has also taken an important position as an iron ore producing country. During the period 1881-85, Great Britain and Ireland's output was nearly 20 times larger than that of Sweden; at present it is only slightly more than six times greater. It is noticeable that Great Britain and Ireland's production has decreased absolutely, not merely relatively as regards that of other countries.

Table No. 2 shows the average annual output of the principal pig-iron producing countries during the period between 1871-75 and 1891-95.

TABLE 2.

Country.	Quantity.			
	1871-75.	1881-85.	1886-90.	1891-95.
	Tons.	Tons.	Tons.	Tons.
Great Britain and Ireland	6,562,000	8,227,000	7,883,000	7,361,000
Germany	1,946,000	3,411,000	4,215,000	5,082,000
France	1,265,000	1,899,000	1,693,000	2,006,000
United States of America	2,284,000	4,370,000	7,193,000	8,263,000
Other countries	2,114,000	2,780,000	3,298,000	4,038,000
Total	14,171,000	20,687,000	24,282,000	26,750,000

During this period it appears that Great Britain and Ireland's proportional share in the world's production of pig-iron has sunk from 46·3 to 27·5 per cent., while on the other hand the United States has increased its proportion of output from 16·1 to 30·9 per cent. In this instance also, during the last 10 years, Great Britain and Ireland's production shows an absolute falling-off, not merely a decrease relative to that of other countries. The rapid development of the United States and Germany as pig-iron producing countries is very striking.

Table No. 3 shows the relative positions of the principal coal producing countries during the period between 1871-75 and 1891-95.

TABLE 3.

Country.	Quantity.			
	1871-75.	1881-85.	1886-90.	1891-95.
	Tons.	Tons.	Tons.	Tons.
Great Britain and Ireland	126,972,000	161,470,000	172,335,000	184,819,000
Germany	44,680,000	68,630,000	81,228,000	97,008,000
France	15,862,000	20,250,000	22,838,000	26,658,000
United States of America	45,283,000	94,130,000	125,214,000	160,832,000
Other countries ..	33,973,000	52,175,000	63,445,000	78,832,000
Total	266,770,000	393,655,000	465,060,000	548,149,000

During the earlier period it thus appears that Great Britain and Ireland supplied 47 per cent. of the world's output of coal, but at the present time only 34 per cent. ; Germany 17 per cent., and now 18 per cent. ; whilst the United States have advanced from 17 per cent. to nearly 30 per cent.

Table No. 4 gives the estimated annual consumption of raw cotton for the United States, Great Britain, and the rest of Europe (excepting Great Britain) during the period between 1831-40 and 1891-94, reckoned in tons.

TABLE 4.

Country.	Quantity.			
	1831-40.	1851-60.	1871-80.	1891-94.
	Tons.	Tons.	Tons.	Tons.
Great Britain and Ireland	1,590,000	3,850,000	5,632,000	7,091,000
Europe	795,000	2,446,000	4,271,000	5,524,000
United States of America	376,000	1,452,000	2,746,000	5,522,000

It therefore appears that since the year 1870 Great Britain's consumption of cotton has increased by one-quarter, whilst that of the rest of Europe and the United States has doubled.

Table No. 5 gives the estimated average annual value of the commerce (imports and exports taken together) of the four greatest trading countries for the period 1881-85, 1891-95.

TABLE 5.

Country.	Value.		
	1881-85.	1886-90.	1891-95.
	£	£	£
Great Britain and Ireland	573,888,888	568,222,222	589,166,666
Germany	306,611,111	325,888,888	352,777,777
France	318,222,222	306,000,000	296,833,333
United States of America	302,333,333	301,611,111	347,333,333

Thus during this period Great Britain's trade has increased by slightly more than 2½ per cent. ; that of Germany and the United States, each by 15 per cent. ; whilst the trade of France has steadily declined. The volume of trade has, it need scarcely be said, increased to a much greater degree than is indicated by these figures, but owing to the almost universal fall in the prices of commodities, the increase in value of exports and imports has been less than might have been expected.

In the department of shipping Great Britain fully maintains her former preponderance.

Table No. 6 gives the steam and sailing tonnage for the principal seafaring nations as estimated at the end of 1894.*

TABLE 6.

Country.	Steam.		Sailing.	
	Number of Vessels.	Tons.	Number of Vessels.	Tons.
Sweden	455	153,300	1,521	319,600
Norway	568	288,600	3,169	1,260,600
Great Britain and Ireland	6,138	6,635,700	7,284	2,813,500
Germany	919	889,800	1,244	620,900
France	610	628,000	1,576	278,000
Italy	226	230,200	1,600	490,000
Spain	390	328,900	730	134,300
Russia	242	132,600	1,600	200,000
United States of America	2,376	838,700	4,380	1,448,000

* The table includes ships of 50 tons register and above. The tonnage is calculated on the so-called "international net tonnage basis," i.e., the tons are register tons reckoned according to German rules of measurement.

In 1875 it is estimated that the total tonnage owned by all nations, including Great Britain, amounted to 15,864,100 tons. For 1894 the estimate for all nations is 21,432,400 tons, an advance of about 35 per cent. during the 19 years. As British tonnage for the year 1894 is estimated at 9,449,200, her proportional share may be calculated approximately at a little more than half.

Table No. 7 gives the length of railway lines in kiloms. for Great Britain and Ireland, Russia, Germany, France, and the United States for the period 1870-95.

TABLE 7.

Country.	Length of Railway Lines.					
	1870.	1875.	1880.	1885.	1890.	1895.
	Kiloms.	Kiloms.	Kiloms.	Kiloms.	Kiloms.	Kiloms.
Great Britain and Ireland	25,004	26,805	28,857	30,849	32,304	34,076
Russia	10,760	19,072	22,972	25,638	29,029	35,316
Germany	18,876	27,981	33,411	37,572	42,869	46,600
France	17,733	21,644	25,925	32,259	36,672	40,199
United States of America...	85,169	119,245	150,144	206,576	268,261	292,491

It is therefore estimated that during the period of 25 years, between 1870 and 1895, the length of railway lines in Great Britain and Ireland has increased by about 9,000 kiloms., in Russia by about 24,500 kiloms., in Germany by 27,624 kiloms., and in France by 22,486 kiloms.; while in the United States the increase is more than 207,000 kiloms., *i.e.*, nearly eight times as great as that of Germany, and twenty-three times as great as that of Great Britain and Ireland.

Perhaps the most striking fact brought into relief by these statistics is the rapidity of Germany's industrial development since the Franco-Prussian war. The fighting organisation of the country was then strong, but its wealth and resources, though sufficient for the effort it was called upon to make, were by no means proportionately developed. The sudden increase of her great coal, iron, and iron ore producing industries, the extension of her railway system, and the quick growth of her foreign trade (considerations more fundamentally related to a continued exercise of influence and power than the actual number of soldiers a nation may, at any given time, be able to put in the field) have now placed her in a much stronger position.

A comparative review of these statistics moreover shows, that the standing of Great Britain (considered apart from her colonies) has retrograded in relation to the other great nations within the last 25 years. In nearly every important department of industry her proportional share has much diminished. As to her shipping only is the early supremacy fully maintained. This change in Great Britain's position with reference to other countries, as regards wealth, occurring as it has within so short

a period, has probably not been appreciated, nor its consequences fully considered, except by those whose attention has been especially directed to such subjects.

It will be seen, however, from the statistics which follow that the standing of Great Britain, when considered in conjunction with her colonies and dependencies, is very different.

Table No. 8 gives the average annual imports and exports for the British colonies and dependencies, and the United States of America for the period 1890-95, and the imports and exports for 1895 of Germany and France.

TABLE 8.

		Germany.*	France.*	United States.	British Colonies and Dependencies.
		£	£	£	£
Imports ..	..	203,516,666	148,794,444	161,350,000	192,488,888
Exports ..	..	163,866,666	134,950,000	167,544,444	211,761,111
		367,383,332	283,744,444	328,894,444	404,249,999

* For 1895.

Thus the sum of the imports and exports of the British colonies and dependencies exceeds the total amount of the exports and imports of the United States by nearly one-fourth, that of Germany by about one-tenth, and that of France by more than one-third.

Table No. 9 gives the estimated average yearly production of wheat for Germany and the United States, and the British colonies and dependencies during the year 1896, also for all nations reckoned together.

TABLE 9.

		British Colonies and Dependencies.	United States.	Germany.	Annual total production for all Nations.
		Tons.	Tons.	Tons.	Tons.
Wheat ..	..	9,076,000	13,410,800	3,281,300	68,805,100

Thus the United States contributes nearly one-fifth, the British colonies somewhat more than one-eighth, but Germany less than one-twentieth of the total production of wheat throughout the world.

Table No. 10 shows the average yearly output of gold and silver for Germany, the United States, and the British colonies and dependencies during the year 1896, also for all nations reckoned together.

TABLE 10.

			British Colonies and Dependencies.	United States of America.	Germany.	Annual total production for all Nations.
			Kilos.	Kilos.	Kilos.	Kilos.
Gold	..	..	67,087	56,648	2,854	245,271
Silver	..	..	478,976	1,786,064	194,235	5,099,691

Thus the United States and the British colonies together produce somewhat more than one-half of the total annual output of gold, and nearly one-half the annual output of silver throughout the world.

Table No. 11 gives the estimated number of cattle, horses, and sheep at present existing in British colonies and dependencies, France, Germany, the United States, and in all countries taken together.

TABLE 11.

	France.	Germany.	British Colonies and Dependencies.	United States of America.	Total Number of Cattle existing in all Countries taken together.
	Number.	Number.	Number.	Number.	
Cattle	13,231,000*	17,556,000†	86,866,000	48,223,000*	340,949,000
Horses	2,812,000	3,336,000	4,815,000	15,124,000	76,821,000
Sheep	21,164,000*	13,590,000†	151,870,000	38,299,000	537,706,000

* In 1895.

† In 1892.

It is therefore estimated that the cattle existing in British colonies and dependencies are nearly twice as numerous as those of the United States, and nearly five times as many as those of Germany; that the number of horses existing in British colonies and dependencies is about one-third as many as that of the United States, and about one-fourth more than that of Germany; and that the number of sheep existing in British colonies is nearly four times that of the United States, and about eleven times as large as that of Germany.

Table No. 12 gives the area and population of the British colonies and dependencies, the United States of America, Russia,* Germany, France, and Great Britain and Ireland, according to the latest estimates; also the rate of increase of the population within the last 10 years.

* Russia; the whole empire is intended, including Finland, Poland, Siberia, the Caucasus, Central Asia, Khiva, and Bokhara, besides Russia proper.

TABLE 12.

Country.	Area in Square Kilometres.	Population.	Percentage of Increase of Population within the last 10 years.
British colonies and depen- dencies	29,625,823	348,924,603	13
United States of America ..	9,210,430	71,263,000	24
Russia	4,924,567	132,397,337	11
Germany	545,135	53,324,000	11·95
France	536,408	38,517,975	0·78
Great Britain and Ireland ..	314,956	40,389,735	8·77

The census recently taken in Russia showed the population to be increasing very fast. Great as it already is, the fact that her railway-system has been so recently created, and at the present time is being extended so quickly, probably indicates that there will be a further rapid increase of population in the near future; also, that the greater material prosperity ensuing on the improved means of communication over so great a territory, will contribute much towards the enlightenment of the peasant classes, and an amelioration in their condition.

In Europe, Russia is computed to have more than 2,000 kiloms. of railway lines under construction, whilst in Asia the work of connecting the chief centres is being pushed forward with much rapidity. The line connecting Vologda with Archangel, 640 kiloms. in length, is completed or nearly so, and before the end of 1898, 700 kiloms. should be contributed towards the completion of the Moscow-Kiev-Voroneje net. A very extensive scheme for the construction of light railways throughout the empire is also said to be in contemplation.

A review of the foregoing statistics goes to show that the position of Great Britain, considered in conjunction with her colonies and dependencies, continues, as regards area, population, and resources, to compare favourably with those of any other nation.

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**REPORT ON THE
BUSSORAH DATE SEASON OF 1897.**

*Presented to both Houses of Parliament by Command of Her Majesty,
FEBRUARY, 1898.*

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TURKEY.

BUSSORAH.

Consul Forbes to the Marquess of Salisbury.

(Received at Foreign Office, February 14, 1898.)

My Lord,

I HAVE the honour to forward herewith a Memorandum I have drawn up on the Bussorah Date Season of 1897.

I have, &c.

(Signed) L. A. FORBES.

Memorandum on the Bussorah Date Season of 1897.

Considering the popularity of the fruit of the date palm (*phoenix dactylifera*), particularly among the juvenile portion of all classes in the United Kingdom, it is somewhat surprising how few even of those who have received education possess any knowledge as to the places from which the sweet and wholesome date is exported. The popular idea is generally found to be represented by a solitary palm tree near a well, or by a score of such trees in an oasis of the desert, but seldom, if ever, does it comprehend millions of acres along the banks of a magnificent river covered like a dense forest with countless palm trees. When it is considered that the palm tree and its products can be utilised for many more than a hundred different purposes by the natives of the countries where it thrives, it will be readily perceived how valuable must be the land which grows them, and how valuable must be the industry and trade connected with its culture and the export of its fruit.

The largest export of dates in the world takes place from Bussorah (Turkish Arabia) situated some 70 miles up the River Shutt-el-Arab, which is the river formed by the combined waters of the rivers Tigris and Euphrates; other ports which compete

with it in this respect are Maskat on the western shore of the Gulf of Oman, Tangier, and some ports of Tunis.

The date season in Bussorah begins, according to the earliness or lateness of the crop, in the early or middle part of September, and lasts six or eight weeks. The crop was ready for packing this year about the usual time, viz., the middle of September.

The price is usually fixed at a meeting of the growers and buyers. This meeting or conference is generally held as soon as the dates are ready for packing, but this year it was considerably postponed with a view to obtaining reasonable terms with the owners of the dates by showing them that exporters were in no hurry, and were not eager to obtain dates at very high prices. Nevertheless, the smaller shippers and some even of the leading exporters in their great anxiety to secure their requirements and commence packing paid high prices for their dates. The first prices demanded were 340 shamis* (about 20*l.*) for "Hellawis" (the best packing date); 280 shamis (about 16*l.* 9*s.*) for "khedrawis" (the second quality); and 180 shamis (about 10*l.* 12*s.*) for "sáyers" (the inferior description) per 1 kara of 2,000 oke† (about 50 cwts.). These prices, however, do not represent the limit of rise for 400, 300, and 200 shamis (about 23*l.* 10*s.*, 17*l.* 13*s.*, and 11*l.* 15*s.* respectively) are said to have been given for the three qualities respectively.

These high prices, it is feared, must result in loss to some shippers, for it is said that a large quantity of dates of last year still remains unsold in London and elsewhere. To maintain prices at a level necessary to obviate great loss it has been thought advisable to institute a combination in London without which it is believed that prices would have descended disastrously low without sales being effected, owing to the flooding of the market by this year's importations of dates. The packing of the dates and the departures of the steamers were also delayed for the purpose of clearing last season's unsold stock in London and America, as well as for the object above alluded to, but buyers would seem not to have come forward, so that the stock has been little reduced.

The British firms engaged in the date trade would seem to make a great mistake in establishing combinations to maintain prices at a high figure instead of using their endeavours to push the retail sale of dates. People who are in need of dried fruits will certainly regard the relative prices of the different sorts, and therefore to artificially keep up the price of dates would not seem to be the best method of improving the trade in the long run, although it may have been successful for one or two seasons. It would appear that the direction in which improvement should be sought is by pushing the retail sale, and by taking into greater consideration the local changes which have taken place in regard to the increase of native packers, the attitude of the native

* 17 shamis are equal to about 1*l.* sterling.

† 1 oke equal to about 2½ lbs. avoirdupois.

growers and practices which were suitable and advantageous years ago, but of which altered circumstances may demand their partial or total abandonment, and the substitution of others more beneficial to the British exporting firms.

The quality of dates this season is said to have been exceptionally good, although the quantity was somewhat less than last season, owing to excessive heat about the time the crop was entering into the ripening stage which caused the fruit to dry up and fall. Some gardens were also affected by blight which caused much fruit to drop off before being matured. It is said that about 750,000 cases of $\frac{1}{2}$ cwt. each were shipped from Bussorah for London, New York, and other places. Maskat is said to have exported 60,000 cases. Besides the shipment of dates in boxes a large quantity is exported in baskets to India and its dependencies. These dates are generally of the inferior qualities and are transported in native sailing craft.

It would seem that the packers of dates were more or less obliged to ship as many cases as they possibly could, seeing that there were at the beginning of the season 1,000,000 empty boxes which had been paid for, the smaller packers not being in a position to be able to hold over empty paid-for boxes to the next season; and seeing also that considerable advances of money had been made to packers who were thus enabled to pack more dates than their own limited capital, without such advances, would have permitted them to pack; large advances to the growers against their dates when ready for packing had also been made. It must also be observed that packers had incurred sundry not inconsiderable expenses in the erection of packing sheds, and were presumably induced to make these preparations for packing as many dates as possible by the comparatively fair prices which were obtained last year for the first arrivals of dates in London, while they seemed either to forget, or fail to take into consideration, the considerable quantity remaining unsold from last year's shipments. So eager and impetuous were some of the minor native shippers to obtain as many dates as they could that, it is related, they have parted with their wives' jewellery even in their hot haste to secure as much profit as possible. But looking at the state of the date market in London, which has already been adverted to above, there would seem to be very little room for doubt that many will repent their rash and ill-judged speculation.

It may be generally said that the culture of the date palm in the Turkish province of Bussorah has steadily increased since the packing of dates in boxes for export to the United Kingdom and America was started, which is about 15 years ago. In the year 1896 the greater part of the country was inundated by unprecedented floods in which it is reported over a million date palms were destroyed; these trees it is believed have been all replaced by young ones, but still it will take 6 to 10 years before the latter produce fruit in any quantity. The high prices which are now obtained by the growers for their dates have rendered

the possession of date gardens most valuable property, and the culture of the date palm receives from the Arabs great care, attention, and expenditure of capital in manuring and irrigation, which is not the case with land under any other form of produce.

It may be interesting to note that one of the uses to which the date has been applied is the manufacture of vinegar. A company was formed for the purpose, but there is no information available as to its success or otherwise. It seems, however, to have effected no appreciable difference in the demand for dates.

Until France imposed a prohibitive duty dates in baskets used to be imported into that country for distilling purposes. At present she imports an inconsiderable amount of dates.

It might be worth while giving the date a trial for making whisky, as "arak," the cheap native liquor of the country, is distilled exclusively from dates.

Lastly, it may be observed that the date business of Bussorah does not possess very bright prospects, although British capital employed in it has shown, and may show this year, good returns; nevertheless, there are circumstances connected with it, briefly touched upon in this memorandum, which demand the consideration of the British firms, and which may detrimentally and permanently influence their share in it.

The consumption of dates seems to have been on the decline, for which there may be many reasons, but perhaps it may be primarily ascribed to other dried fruits, such as currants, raisins, and figs, being procurable at a cheaper rate, and it would therefore seem to be a mistake to bolster up the price of dates by combinations which will certainly not tend to augment the demand for them. The large annual shipments serve only to glut the market, while no signs of an increasing demand are apparent. The demand for dates must be dependent to a very considerable extent on the supply and price of other dried fruits, and it has been said that a total failure of the Bussorah crop would not raise the price of dates 25 per cent. if other dried fruits were an average crop. On the other hand the expenses connected with buying, packing, and shipping the dates to England are so large that unless a certain price is obtained for them loss must ensue.

The native growers for the last two years have demanded and received much higher prices for their dates, and they will be likely to hold out in future for equally high, if not higher, prices, on one pretext or another. Combinations of packers to limit the price to be paid for the dates, or to limit the number of boxes to be shipped, or to abandon the custom of giving advances to the growers seem to be impotent in effecting any good owing to the unreliableness and untrustworthiness of some of their number. The practice of making considerable advances to small packers, who are thus enabled to swell the shipments far beyond the requirements of the market, should be kept within very narrow limits,

if not abolished altogether. As a final observation, it may be said that probably the best thing for the date business in Bussorah, as regards the interests of the British firms, would be if the small packers were to suffer a severe blow which would drive them to an abandonment of it.

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Report on the Vilayet of Broussa

By MR. VICE-CONSUL GILBERTSON.

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The Vilayet of Broussa, the official name being Hudaven-dighiar, is bounded on the north by the Mutessarifik of Ismidt and the Sea of Marmara, on the east by the Vilayets of Angora and Konia, on the south by part of the last-named Vilayet and that of Aidin (Smyrna), and on the west by the Sandjak or Mutessarifik of Bigha (Dardanelles), and is situated within $24^{\circ} 15''$ to 29° long., and $37^{\circ} 45''$ to $40^{\circ} 55''$ lat.

Its total superficial area covers 68,400 square kiloms., viz. :—

				Square Kilometers.
Sandjak of Broussa	..	..	..	9,400
" Erthogroul	..	..	..	8,300
" Kutahia	..	..	..	18,800
" Afion Carahissar	..	..	..	16,700
" Karassi..	..	..	..	15,200
Total	..	..	..	68,400

The province is administratively divided into five sandjaks, 29 cazas, and 81 nahiés, and comprises 3,058 villages.

The Sandjak of Broussa has seven cazas, a like number of nahiés, and 411 villages. That of Erthogroul has four cazas, 15 nahiés, and 456 villages. The Sandjak of Kutahia has five cazas, 14 nahiés, and 851 villages. That of Carahissar has four cazas, eight nahiés, and 437 villages. The Sandjak of Karassi has nine cazas, 17 nahiés, and 903 villages. See Annex 1.

The vilayet has an adult male population of 1,626,869 inhabi- Population.
tants; the Turkish Government takes no note of females or male children under 15 years of age, returning only the total of males liable to military service among Moslems, and among Christians those from whom the military service exemption tax is exigible.

The following table shows the proportion of each sect and the Sandjaks wherein they are installed :—

Sandjaks.	Moslems.	Greeks.	Armenians.			Bulgarians.	Jews.	Europeans.	Sundry.	Total in Sandjak.
			Gregorians.	Catholics.	Protestants.					
Broussa	261,386	68,749	44,974	1,419	416	398	2,701	1,294	883	382,220
Erthogroul	201,324	36,442	16,774	860	188	..	53	..	..	255,641
Kutahia	302,283	29,134	10,045	754	..	..	100	..	..	342,317
Carahissar	251,900	21	5,040	..	..	..	..	..	..	256,961
Karassi	279,700	96,365	8,520	..	..	1,592	501	1,604	1,448	389,780
Total ..	1,296,593	230,711	85,354	3,083	604	1,990	3,355	2,898	2,331	1,626,869
			88,991							

The above table indicates the proportion in each Sandjak, but for easier reference I give the proportions in each Caza.

SANDJAK OF BROUSSA.

Cazas.	Moalems.	Greeks.	Armenians.			Bulgarians.	Jews.	Europeans.	Sundry.	Total in Cazas.
			Gregorians.	Catholics.	Protestants.					
Brousee	102,400	11,264	13,631	669	234	..	2,548	1,251	..	132,047
Ghémlek and Bazar	..	..	..	..	84	..	..	..	777	60,543
Keni	19,612	16,259	23,811	..	98	398	73	43	106	63,842
Michalitch	43,953	16,051	2,370	750	..	..	..	..	..	35,114
Moudania	14,297	20,827	..	..	..	..	80	..	..	38,544
Kernasti	36,439	1,148	837	..	..	..	..	..	..	52,130
Adranos	44,705	3,200	4,225	..	..	..	..	..	..	..
Total ..	261,386	68,749	44,974	1,419	416	398	2,701	1,294	883	382,220

SANDJAK OF ERTHOGRoul.

Biledjik	74,670	13,055	7,504	860	188	..	6	..	..	96,283
Senhud	35,654	1,488	3,651	..	..	..	47	..	..	40,840
Ene-gueul	48,216	9,951	2,149	..	..	..	..	..	..	60,316
Yenichehir	42,784	11,948	3,470	..	..	..	..	..	..	58,202
Total ..	201,324	36,442	16,774	860	188	..	53	..	..	255,641

SANDJAK OF KUTAHIA.

Cazas.	Moslems.	Greeks.	Armenians.			Bulgarians.	Jews.	Europeans.	Sundry.	Total in Cuzas.
			Gregorians.	Catholics.	Protestants.					
Kutahia	112,976	4,050	2,553	754	..	..	..	..	..	120,383
Eskişehir	38,200	22,700	6,074	..	..	..	100	..	..	67,074
Ouchak	73,466	2,384	1,419	..	..	..	..	..	..	76,269
Ghédiz	40,764	..	..	..	..	..	..	..	..	40,764
Semaw..	37,877	..	..	..	..	..	..	..	..	37,877
Total ..	302,283	29,134	10,046	754	..	..	100	..	..	342,317

SANDJAK OF CARAHISSAR.

Carahissar	72,606	18	4,812	..	..	..	..	..	..	77,436
Bolvadin	33,770	..	..	..	..	..	..	..	..	33,770
Sandikly	114,612	..	170	..	..	..	..	..	..	114,782
Azizié ..	30,912	3	58	..	..	..	..	..	..	30,973
Total ..	251,900	21	5,040	..	..	..	..	..	..	256,961

SANDJAK OF KARASSI.

Cazas.	Moslems.	Greeks.	Armenians.			Bulgarians.	Jews.	Europeans.	Sundry.	Total in Cazas.
			Gregorians.	Catholics.	Protestants.					
Balekesser ..	108,624	2,351	1,941	..	..	1,577	..	..	36	109,529
Alvali ..	180	21,486	..	..	..	..	..	1,506	..	23,172
Kemer ..	16,749	2,062	..	..	..	..	..	..	..	18,811
Adramidt ..	42,933	7,482	..	..	..	..	5	..	194	50,614
Erdek ..	5,418	54,467	706	..	..	..	492	98	98	61,279
Gunan ..	25,001	1,854	13	..	..	15	4	..	..	26,887
Panderma ..	50,594	5,914	5,860	..	..	..	..	..	1,120	63,489
Bighajik ..	12,771	34	..	..	..	..	..	..	..	12,805
Sanderghi ..	22,430	715	..	..	..	..	..	..	..	23,145
Total ..	279,700	96,365	8,520	..	..	1,592	501	1,604	1,448	389,730

As will be noticed by the foregoing returns nearly four-fifths of the total population of the province are Moslems, and these are principally composed of Turcomans who came into the country before the irruption of the Arab tribe of Hamadan in 924, the Seldjouks, who in 1071 advanced as far as Mount Olympus, and finally succeeded in taking Broussa in 1097. Amongst this sect a large number are of Greek origin, who embraced Islamism after the conquest of Broussa by the Ottomans. They are principally agriculturists, but in the towns they are butchers, blacksmiths, shoemakers, vendors of fruit and vegetables, cab proprietors, saddlers, grocers, and carriers, very few being engaged in commercial pursuits.

Of the remaining one-fifth of the total population the Greeks are preponderant, numbering 230,711, and are especially so in the Sandjaks of Karassi, Broussa, and Erthogroul. It is supposed that they are the direct descendants of the citizens who inhabited the ancient cities that once existed on the littoral of the two former sandjaks. They are principally land proprietors and engaged in trade.

The Armenian sects, whether Gregorian, Catholic, or Protestant, who number 88,991 in all, have very little dissimilarity amongst them or with the Armenians in general of the Ottoman Empire, and are, like those installed in the Sandjak of Bigha (Dardanelles), descended from the refugees who emigrated from Persia during the first persecutions by the Sofis. Over 52 per cent. of their number are established within the Sandjak of Broussa. Besides the usual professional classes, clergy, lawyers, and doctors, they are wholesale merchants and agents engaged in buying, selling, and forwarding the special products of the province; these employ considerable numbers of clerks, brokers, cocoon, wool, and mohair sorters, spinners, and assistants; others are occupied as import merchants, money-changers, money-lenders, tithe-collectors, tax-gatherers, stonemasons, builders, labourers, carpenters, painters, cabinet-makers, weavers, dyers, cooks, tailors, drapers, shoemakers, silversmiths and jewellers.

The Bulgarians installed in the Sandjaks of Broussa and Karassi, to the number of 398 at Michalitch, 15 at Gunan, and 1,577 at Balia, are Pomacks who were exiled from their country after the war with Russia in 1878. Ground was given to them by the Government, and being industrious their property is in a very fair state of cultivation. Their colonies, although small, have prospered, and the men being of a peaceful nature make good neighbours.

With respect to the Jews they, like nearly the whole of their race established in Turkey, owe their ancestry to those of their creed who were in a body exiled from Spain with the Arabians. Their occupations consist of dealings in silk and cloths, and other callings such as money-changers, money-lenders, brokers, mercers, butchers, grocers, tinmen, and pedlars.

The Europeans are engaged as merchants, agents, civil and mining engineers, overseers, doctors, apothecaries; others are proprietors of farms, mines, quarries, and silk factories.

There are 1,889 schools in the province, of which 79 are superior, 62 secondary, and 1,748 elementary. These schools are attended by 41,748 scholars, of whom 38,111 are boys and 3,637 girls.

These schools and scholars when divided amongst the different communities present the following result:—

Community.	Schools.		Scholars.		Total.	
	Boys.	Girls.	Boys.	Girls.	Schools.	Scholars.
Moslems	1,489	10	27,035	267	1,499	27,302
Greek	290	50	9,078	2,663	340	11,741
Armenian, Gregorian ...	30	6	1,400	170	36	1,570
„ Catholic	3	1	160	25	4	185
„ Protestant	1	1	110	130	2	240
Catholic, Latin	1	1	68	250	2	318
Jewish	4	2	260	132	6	392
Total	1,818	71	38,111	3,637	1,889	41,748

The climate of the vilayet varies in accordance with the situation and altitude, but in general is temperate and healthy. Climate.

The Sandjak of Broussa is humid, the temperature hot in summer and cold in winter; the thermometer falling sometimes, as this winter, to 13 degrees below zero.

Some years ago rice was cultivated on a large scale and fever prevailed, but since the Government prohibited the culture of this productive article—for it yields from 60 to 80 bushels to each one sown—the district is salubrious.

Severe winters are rare in the Sandjak of Erthogroul (Bilodjik), the thermometer seldom descending to zero, and the heat in summer is not excessive.

At Eskichehir and Kutahia the winters are, as a rule, rigorous, and the heat during the summer months would be unbearable were it not for the cooling north winds which are prevalent during that season.

The heat in the Sandjak of Afion-Karahissar is more oppressive than in that of Kutahia, and this is due to the high range of mountains that separates the two districts and intercepts those cooling breezes that prevail in the latter sandjak. In winter snow falls often and in abundance, and the frosts are so severe and lasting that they often cause great prejudice to the opium crop by partly or entirely destroying the poppy seeds that are sown in the autumn.

The only unhealthy part in the Sandjak of Karassi (Balekesser) is Tahir-ovassi, a marshy plain situated on the littoral between the peninsula of Cyzicus and the Mutessarifik of Bigha (Dardanelles), otherwise the sandjak is noted for its salubrity.

During the other seasons snow is seldom seen, unless it be on Mount Olympus, although in April the temperature sometimes falls so low as to nip in the bud the vines and fruit trees.

The following is a list of the minerals that have been discovered, and they are in sufficient number to show that the province of Broussa is exceedingly rich both in metalliferous and earthy minerals:— Minerals.

Gold, silver, argentiferous lead, copper, antimony, cassiterite, cinnabar, galena, chrome, emery, manganese, copper and iron pyrites, blende, calamine, graphite, rutile, iron—hæmatite, magnetic, limonite, and spathic—coal, brown coal, bitumen, asphalt, asbestos in long slender flax-like fibres with a rich satin or silky lustre, mountain cork, mountain leather and ligniform, boracite, meerschaum, nitre, rock-salt, gypsum, phosphates, mica, &c.; white, blue antique, rose and other marbles, lazulite or lapis-lazuli, millstone grit, granite, porphyry, alabaster, and lithographic stone of an excellent colour and quality.

The great drawbacks to the mining industry is the lack of capital, communication with the actual railways, and the want of roads to the littoral. Thus, numerous mines, which otherwise could be worked with profit, are abandoned owing to the want of means or the high cost of transport.

Most of the mines worked are either owned by British subjects or their capital is employed in working them.

I have not dealt with the mines that are worked in this report, as they will be dealt with separately in ulterior reports on each sandjak within which they are situated.

Mineral
waters.

The province is famed for its hot and cold springs, and it is doubtful if there is another country so rich in mineral waters.

Salines.

It has been stated that salt in its natural state does not exist in this vilayet, but these statements are incorrect, for both rock salt and brine springs are to be found. In fact, some years ago, the discoverer made offers to the Dette Publique, which holds the monopoly for this indispensable article, for the opening out of certain deposits. He proposed either to work them and pay a royalty, or should the aforesaid administration prefer working them on its own account, he would indicate their position and whereabouts if the Dette would in return agree to pay him a small royalty on the salt extracted. These offers were declined on the ground that it had already too much salt on hand.

All the salt consumed in this province is imported from the vilayets of Aidin (Smyrna) and Konia. From Phocia in the former and from the salt lake at Kotch-hissar and other rock salt deposits in the latter province.

The Dette Publique has dépôts at the ports of Panderma, Moudania, and Ghemlek, where its salt is sold at 15 paras per kilo. The price of this article in the interior varies in accordance with the distance from the littoral and the salt deposits in question, ranging from 3*l.* 10*s.* to 8*l.* per ton.

The wholesale price charged for this indispensable commodity in Broussa is exorbitant. Although our town is within an hour and forty minutes by rail from Moudania, it costs over 1*l.* per ton more than is paid at that port.

Forests.

The forests worked by Government or under its control are 97 in number and have a superficial area of 23,411 square kiloms.

Annex No. 2 indicates the nature of the wood, how it is employed or used, and how these forests are distributed within the five sandjaks of the vilayet.

The revenue, including the tax on sawmills, only amounts to within a fraction of 200,660*l.*, which after deducting 3,345*l.* for expenses leaves a sum of 197,315*l.*

Should the projects in contemplation for new roads and railways ever be carried out and those actually constructed, prolonged, and finally joined, these magnificent forests would become one of the principal resources of the vilayet.

The fauna of the province is also rich. Bears, wild boar, and roe-deer are abundant, red-deer are also found, together with wolves, hyenas, lynx, foxes, jackals, badgers, otters, polecats, and a small species of leopard. Eagles of more than one species are constantly in sight, vultures are occasionally met with, and the common and red-legged partridge, pheasant, woodcock, snipe, hare, and quail are abundant. Fauna.

There are 21 telegraphic stations within the vilayet, of which only eight are international, viz., Broussa, Biledjik, Eskichehir, Aivali, Adramidt, Ghemlek, Moudania, and Panderma; the service of the remaining 13 being in Turkish. Posts and telegraph.

There is also a submarine cable between Aivali and Mitelin of 13 nautical miles in length.

The length of the telegraph lines are :—

						Kilometres.
Single wire	..	..	..	..	..	525
Double „	..	..	..	..	..	513
Treble „	..	..	..	..	..	75
Total	..	..	..	..	..	1,113

The gendarmerie of the province is composed of a single regiment. This is comprised of certain squadrons of cavalry and companies of foot, the details of which, together with the police force, will be enumerated later on in my reports on the sandjaks. Gendarmerie and police.

The raising of stock within the vilayet is on an annual average as follows :—

						Number.
Cattle	..	..	..	..	..	1,180,000
Horses, mules, and donkeys	..	..	..	..	..	203,000
Sheep	..	..	..	..	..	1,245,050
Goats, mohair	..	..	..	..	..	930,920
„ common	..	..	..	..	..	621,030
Camels	..	..	..	..	..	17,000
Total	..	..	..	..	..	4,200,000

Great importance is attached to the raising of the ovine race, and this is due to its superior quality of wool. The quantity obtained per head varies from 2 to 5 kilos., and if three is taken

as the lowest average, the annual quantity of wool obtained will be 3,735,150 kilos.

Public works.
Broussa-Ghemlek road.

The oldest road in the province is that from Ghemlek to Broussa, and it was the first of its kind that was constructed in Turkey. The order for its construction was issued by Sultan Abdul Medjid in 1850, and although its entire length is only 35 kiloms., 15 years elapsed before it was completed, it being opened on November 5, 1865.

Broussa-Môudania road.

The length of the Môudania-Broussa highway, from the east end of the former port to the entrance of the latter town, is 34 kiloms. This road has two extensions, the one commencing from the west end of Môudania to Trilia, and the other starting from the Jewish cemetery, near the entrance of the main road to Broussa, and joins the Kutahia-Broussa road at the north-east of the latter town. These extensions are 12 and 5 kiloms. respectively.

Broussa-Michalitch road.

The Broussa-Michalitch highway, which branches off the Môudania road at Ajemler, 3 kiloms. to the north-west of Broussa, takes a south-westerly direction and runs along the northern side of the Lake of Apollonia. It is 59 kiloms. long.

This road has been extended to Panderma, a distance of 40 kiloms. The total length of the road from Broussa to Panderma, viâ Michalitch, being 102 kiloms.

Broussa-Biledjik road.

The road to Biledjik, viâ Yenichehir, which quits Broussa at the north-eastern part of that town, pursues an easterly direction, and is 95 kiloms. long. It has two extensions, both starting from Biledjik, the one to Senhud, and the other joining the Kutahia road some 10 kiloms. to the east of Bazarjik; the first being 23 and the second 18 kiloms. long. It has also two branches, one joining the towns of Yenichehir and Eïne-gueul, and the other branching off the main road opposite Tchardak—a village 10 kiloms. to the west of Yenichehir—and joins the Broussa-Ghemlek road at about half a kilom. to the south of the latter port. The length of the former branch is 28, and that of the latter 55 kiloms.

The total length of this road, including its extensions and branches, is 230 kiloms.

Broussa-Kutahia, viâ Eïne-gueul, Bazarjik, Bozoûk, and Ju-eunu.

The Broussa-Kutahia road strikes off at the eleventh kilom. of the Broussa-Biledjik highway, and like the latter road, continues eastward but inclines slightly to the south up to Bozoûk, where it twice crosses the Anatolian railway, and after passing by Ju-eunu, swerves to the south-west and continues in that direction until Kutahia is reached, its length being 220 kiloms.

Kutahia-Ihsaklu, viâ Altintash, Karahissar, and Tchah.

On quitting Kutahia, the Kutahia-Ihsaklu road takes a south-eastern course up to the limits of this Vilayet, and upon entering the province of Konia advances eastward towards Akchehir. The distance from Kutahia to the boundaries of this Vilayet being 187 kiloms.

Kutahia-Ouchak, viâ Ghédiz.

The Kutahia-Ouchak road branches off at the twelfth kilom. of the Kutahia-Ihsaklu highway, taking a south-western direction to Ghédiz, whence it turns direct south to Ouchak. From Kutahia to Ouchak by this road it is 142 kiloms.

Karahissar-Sandikly. Tchah-Azizié.

The length of the Karahissar-Sandikly highway is 90 kiloms. The distance between Tchah and Azizié is 56 kiloms.

The Ghemlek-Yalova road strikes off at the thirteenth kilom. Ghemlek- of the Ghemlek-Tchardak branch, and is only completed to Yalova. Bazarkeui, the distance being 10 kiloms.

The length of the Broussa-Adranoz road is 54 kiloms., of Broussa- which only the first 5 kiloms.—from Broussa—are finished. Adranoz.

The railways that exist or pass through the Vilayet are four Railways. in number, viz., Anatolian, Smyrna-Aidin, Smyrna-Cassaba, and the Môudania-Brousse.

The Anatolian line enters the north-eastern part of the province a mile or so to the south of Mekédjé—principal station for Iznik (Nicea), and passes by the towns of Lefké, Biledjik, Eskichehir to a little beyond Ap-Keui, the distance being within a fraction of 187 kiloms.

Another section of the above line is the Eskichehir-Konia branch, passing by Kutahia and Carrahissar, its total length being about 450 kiloms. It is joined at the latter town by the Alachehir-Karahissar branch of the Smyrna and Cassaba railway, thus uniting Constantinople and Smyrna by rail. The distance between Alachehir and Karahissar being 247 kiloms.

The Smyrna and Aidin railway also runs through the Sandjak of Karahissar, entering near Tchardak, passing by Dinair to Eshekli; length, 98 kiloms. 385 metrea.

These lines have the same gauge, viz., 1.44 metres.

The Môudania-Brousse railway is 42 kiloms. long, the gauge being 1 metre.

The earthwork is light, and the only technical part of any importance is the two iron bridges that cross the winding river Nilufer, the one being 67 and the other 82 metres long.

The company has the right of prolonging this line to Kutahia viâ Tchitli, but owing to a difference with the Imperial Government respecting the kilometric guarantee—which appears not to have been explicitly defined in the concession—the question of its prolongation has been dropped.

It is to be hoped that an arrangement will be arrived at between the Government and the company, for should the line be built in its entire length, or even to Tchitli, both parties would benefit thereby. The heavy expenses of carriage from the interior fetters agriculture, and although in good seasons considerable quantities of wheat, barley, and maize are exported, the line, when built, would not only enable the rural classes to find a more ready market for their produce, but would induce them to better the culture and stocking of their farms.

In reality, agriculture is in its infancy, as in all agricultural Agriculture. operations there is little improvement on the primitive methods of the earliest ages, unless it be on certain farms and lands owned or leased by Europeans and refugees from Bulgaria, Roumelia, and Greece.

The implements used by the latter are principally of English make, such as ploughs, drills, harrows, corn-crushers, and a few reaping and thrashing machines.

The principal agricultural products are cereals, olive trees, and

other oleaginous plants; mulberry—the leaves of which are used for raising silkworms—cotton, and other textile plants; leguminous and tinctorial plants; opium, honey, wax, vines, wine, tobacco, valonea, and every species of fresh and dried fruits, &c.

The total production is roughly estimated as follows:—

Articles.					Quantity.
Wheat	..	..	..	Quarters	2,275,000
Barley	..	..	..	"	1,215,000
Rye	..	..	..	"	165,000
Oats	..	..	..	"	90,000
Meslin	..	..	..	"	97,000
Maize	..	..	..	"	140,000
Millet	..	..	..	"	144,000
Beans	..	..	..	Kilos.	10,000,000
Kidney-beans	..	..	..	"	1,800,000
Chick-peas	..	..	..	"	7,000,000
Lentils	..	..	..	"	218,000
Vetches	..	..	..	"	350,000
Linseed	..	..	..	"	1,500,000
Sesame	..	..	..	"	650,000
Cotton	..	..	..	"	2,800,000
Opium	..	..	..	"	750,000
Tobacco	..	..	..	"	700,000
Olive oil	..	..	..	"	11,000,000
Wine	..	..	..	"	15,000,000
Hemp	..	..	..	"	70,000
Honey	..	..	..	"	800,000
Wax	..	..	..	"	45,000
Raisins	..	..	..	"	4,000,000
Figs	..	..	..	"	1,500,000
Grapes	..	..	..	"	48,500,000
Fruits	..	..	..	"	61,000,000
Valonea	..	..	..	"	15,000,000
Chestnuts	..	..	..	"	2,100,000
Walnuts	..	..	..	"	2,300,000
Cocoons (1896-97)	..	..	..	"	5,386,119
Silk (1896-97)	..	..	..	"	398,831
Goat-hair	..	..	..	"	500,000
Mohair	..	..	..	"	650,000
Wool	..	..	..	"	3,735,150
Various	..	..	..	"	945,000

Tobacco.

The culture of tobacco used to be of great importance, the yearly crop averaging over 2,000,000 kilos., but since the Régie des Tabacs was established, it has, as in other parts of the Empire, fallen-off considerably. This is due in general to the low price paid for the tobacco by that administration. The average price paid per kilo. for the crops of 1895-96 and 1896-97 was 1 pias. 13 c. and 1 pias. 24 c. respectively.

The amount of leaf tobacco brought by the cultivators to the Régie for sale in 1895-96 was 698,754 kilos., and of this amount only 482,140 kilos. were purchased. The sum paid was 545,679 pias. 30 c. (4,850*l.*), averaging, as already stated, 1 pias. 13 c. per kilo. The cost for manipulating this tobacco was 304,927 pias. 40 c. (2,710*l.*), equal to 0.632 pias. per kilo.

or 56 per cent. of the price paid for the tobacco itself, and bringing its total cost to 1 *pias.* 76 *c.* per kilo.

The remaining 216,614 kilos. consisted of *filis* and tobacco which had been confiscated or was in litigation.

The crop of 1896-97 did not differ much from that of the previous year, as it produced 696,853 kilos., or only 1,901 kilos. less than in 1895-96. Barely 49 per cent. or 341,727 kilos. of this tobacco was purchased by the Régie, for which it paid 426,083 *pias.* 30 *c.* (3,787*l.*), the average cost per kilo. being 1 *pias.* 24 *c.* The amount paid for manipulating this was 309,966 *pias.* 30 *c.* (2,755*l.*), equal to 0.908 *pias.* per kilo., or nearly 73 per cent. of the price paid to the cultivators. The total average cost per kilo. being 2 *pias.* 15 *c.*

The surplus—355,126 kilos.—tobacco was, like the previous year, composed of *filis* and tobacco that was either in litigation or had been confiscated.

The total sale of manufactured tobacco in 1896-97 realised 10,867,925 *pias.* (96,604*l.*), as against 14,449,618 *pias.* (128,441*l.*) in the previous year, or 3,581,693 *pias.* (31,837*l.*) less than in 1895-96.

This decrease is due to smuggling, which is carried on on a large scale. The smugglers purchase the best leaf tobacco procurable, for which they pay from 6 to 10 *pias.* the oke, which, when cut, is sold and delivered by them or their agents at the purchaser's house for from 15 to 20 *pias.* (2*s.* 6*d.* to 3*s.* 4*d.*) the oke.

The rearing of silkworms forms one of the most profitable Sericulture. resources of the province, and the region wherein they are raised extends from the peninsula of Cyzicus on the west, at variable distances inland from the coast, to the valley of the Sakaria (Sangarius) eastwards.

The largest yield of cocoons ever known was in 1855, of which the equivalent in silk reached near 400,000 okes of the value of 1,500,000*l.* In 1856 the silkworm disease appeared, and in that and subsequent years made such havoc amongst the worms, that in 1864 the total production of silk fell to 150,000 okes, of the value of 477,272*l.* From 1864 to 1880 the production was less than in the former year, whilst in the latter it fell to 361,960*l.* From 1881 to 1890 the yield gradually increased owing to the importation of sound eggs from France and Italy, the yearly imports being estimated at 120,000*l.*

In 1881 the silk tithe of the province was conceded to the Dette Publique, and in 1882, when that administration took possession, its value was only 13,360*l.*

In view of revivifying the trade to its former prosperity, the Dette in 1888 founded a Sericicole Institute at Broussa to instruct the natives how to distinguish healthy from diseased eggs, and the manner of rearing silkworms in accordance with Dr. Pasteur's system. Since the school was inaugurated over 300 students have obtained diplomas of efficiency, and they now furnish seed of an excellent quality. To form an idea of the progress made it will suffice to consult the following table:—

TABLE showing Progress made in Sericulture during the Years 1891-96.

Year.	Quantity in Ounces.			Result of Yield (Fresh).	Value.	Average Production per Ounce of Seed.	Average Price per Kilo.	Tithe Received by Dette Publique.	Amount of Native Seed Exported.	Raw Silk Consumed Locally.	Raw Silk Exported.	Cocoons (Dry) Exported.	Waste Exported.
	Foreign.	Native.	Total.										
1891 ..	25,586	94,593	120,184	3,426,027	Piastres. 41,725,581	Kilos. 28·500	Piastres. 13·	Piastres. 4,472,553	Ounces. 996	Kilos. ..	Kilos. ..	Kilos. ..	Kilos. ..
1892 ..	12,103	116,376	128,484	4,324,670	56,117,224	33·661	13·	5,611,722	20,317	14,896	281,568	147,428	277,025
1893 ..	2,935	105,413	108,348	4,610,584	70,206,210	42·550	15·22	7,020,621	41,947	20,332	283,519	98,755	257,944
1894 ..	1,378	116,137	117,515	4,531,106	53,159,053	39·980	11·60	5,315,906	44,179	19,381	316,826	79,391	247,008
1895 ..	541	98,230	98,771	3,439,984	45,495,044	34·827	11·80	4,549,504	189,239	14,180	304,416	46,242	256,865
1896 ..	3,134	115,619	118,753	5,386,119	58,568,571	45·355	10·87	5,856,857	218,106	11,751	332,080	85,864	299,360

The foregoing figures indicate that in 1891 the importation of foreign eggs was still considerable, and they also show that such imports have almost been totally superseded by native produce.

Although in 1891 only 998 ounces of native seed was exported, it reached 20,317 ounces in 1892. That amount was more than doubled in 1893, and although only a slight augmentation occurred in 1894, the following year the exports were 189,239 ounces, and in 1896 reached 218,106 ounces, or an increase of 28,867 ounces upon the year 1895.

In 1896 seed to the amount of 27,971 ounces was forwarded to other provinces of the empire, which, together with the eggs exported and those incubated within the vilayet, bring the total native produce during 1896 to 361,696 ounces.

Of this amount 158,420 ounces went to Russia, and France imported 52,798 ounces.

The average production of an ounce of seed incubated within the province in 1895 was 34.827 kilos., while in 1896 it averaged 45.355 kilos., or 10.528 kilos. per ounce more than in the previous year.

The total yield of cocoons in 1895-96 was 3,439,984 kilos. of the value of 413,591*l.*, but the crop of 1896-97 yielded 5,386,119 kilos., which realised 532,441*l.*, or an increase of 1,946,135 kilos. of the value of 118,850*l.*

As already stated the silk tithe when taken over by the Dette Publique in 1882 was 13,363*l.*, but for the six years 1891-96 it has averaged 49,723*l.* In 1895-96 it realised 41,360*l.*, and in 1896-97 attained to 53,244*l.*, or an increase of 11,884*l.*

Although there has been a gradual decrease in the local consumption of raw silk, the exports have increased. In 1896 11,751 kilos. were used for local purposes, as against 14,180 kilos. in 1895, or a decrease of 2,429 kilos. The exports in 1896 attained 382,080 kilos., as against 304,416 kilos. in the previous year, being an increase of 77,664 kilos. of the value of 108,730*l.*

The average price per kilo. of raw silk during the last six years (1891-96) was 44, 46, 51, 37, 39, and 35 fr. respectively, or an average of 42 fr. during the whole of that period.

The number of filatures in the vilayet are 84, with 4,767 reels, viz. :—

				Number of Filatures.	Number of Reels.
In Broussa	..	..	..	39	2,146
At Demirdesh	..	..	..	1	100
Moudania	..	..	..	3	180
Ghemlek	..	..	..	1	80
Yenijekeui	..	..	..	1	40
Djérak	..	..	..	7	325
Biledjik	..	..	..	11	710
Senhud	..	..	..	4	192
Keuplu	..	..	..	9	550
Ashakeui	..	..	..	2	120
Lefké..	..	..	..	3	152
Peldhos	..	..	..	2	112
Vizir-Han	..	..	..	1	60
Total	..	..	..	84	4,767

Within the last six years over 40,000,000 new mulberry trees have been planted in the vilayet, and as the fear of a renewal of the silkworm disease has, thanks to the discovery made by the late Dr. Pasteur, been removed, the culture of the mulberry and production of silk will certainly receive a development never yet attained.

ANNEX 1.

Sandjaks.	Cazas.				Number of Nahiés.	Number of Villages.
Broussa ..	Broussa, Merkez-caza	..	..	..	..	130
	Ghemlek and Bazarkeni	..	..	..	2	43
	Michalitch	..	..	..	..	81
	Kermasti	..	..	..	1	70
	Adranoz (Edrénoe)	..	..	..	2	69
	Moudania	..	..	..	2	18
	Total	..	..	..	7	411
Erthogroul ..	Biledjik	..	..	..	6	176
	Senhud	..	..	..	4	85
	Eïne-gueul	..	..	..	3	105
	Yenichehir	..	..	..	2	90
	Total	..	..	..	15	456
Kutahia ..	Kutahia	..	..	..	8	340
	Eskichehir	..	..	..	1	152
	Ouchak	..	..	..	3	158
	Ghédiz	..	..	..	..	76
	Semaw	..	..	..	2	125
	Total	..	..	..	14	851
Karahissar ..	Afion-Karahissar	..	..	..	..	138
	Bolvadin	..	..	..	2	29
	Sandikly	..	..	..	4	215
	Azizié	..	..	..	2	55
	Total	..	..	..	8	437
Karaasi ..	Balekesser	..	..	..	7	423
	Aïvali	..	..	..	..	1
	Kemer	..	..	..	..	41
	Adramidt	..	..	..	3	123
	Erdek	..	..	..	4	34
	Gunan	..	..	..	..	73
	Panderma	..	..	..	3	89
	Bighajik	..	..	..	..	51
	Sanderghi	..	..	..	..	68
	Total	..	..	..	17	903
Grand total					61	3,058

NOTE.—5 sandjaks and 28 cazas.

ANNEX 2.

Sandjaks.	Cazas.	Number of Forests.	Square Kiloms.	Kind of Trees.
Broussa ..	Broussa ..	5	724	Oak, pine, elm, chestnut, fir, birch, and beech
	Ghemlek ..	11	2,303	
	Michalitch ..	6	877	
	Kermasti ..	5	1,244	
	Adranoz ..	15	2,023	
	Total ..	42	7,171	
Erthogroul ..	Einc-gueul ..	18	4,148	Oak, beech, chestnut, elm, pine, and fir
Kutahia ..	Kutahia ..	3	1,822	Beech, chestnut, oak, pine, and fir
	Eskichehir ..	3	822	
	Ouchak ..	4	824	In the каза of Ghédiz, exclusively oak
	Ghédiz ..	4	917	
	Semaw ..	2	619	
	Total ..	16	5,004	
Karahissar ..	Karahissar ..	6	1,326	Oak, pine, and fir
	Bolvadin ..	8	2,425	
	Total ..	14	3,751	
Karassi ..	Balekesser ..	6	2,718	Beech, elm, oak, pine, and fir
	Bighajik ..	1	619	
	Total ..	7	3,337	
	Grand total..	97	23,411	

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DIPLOMATIC AND CONSULAR REPORTS.

TURKEY.

REPORT ON THE

SPONGE FISHERIES OF TRIPOLI,
NORTH AFRICA.

*Presented to both Houses of Parliament by Command of Her Majesty,
JULY, 1898.*

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1898.

[C. 8649—40.]

Price One Halfpenny.

Report on the Sponge Fisheries of Tripoli, North Africa,

By MR. CONSUL-GENERAL JAGO.

(Received at Foreign Office, June 17, 1898.)

Although the sponge fisheries of Tunis, between Jerba and Sfax, and those of the Cyrenaica, from Bengazi to the Egyptian frontier, had been worked for many years, it was not until 1885 that the attention of the Greek sponge diver was called to the possibilities of the grounds off the coast of Tripoli. It was not, however, till 1890, when catches reached the value of 12,000*l.*, that the grounds were well explored, and in 1893 values rose to 74,200*l.*, to be again reduced to 28,000*l.* in 1896, the average annual value since 1890 to the present time having been about 33,000*l.*

The fishermen are Greeks from the Greek islands of Hydra and Ægina, a smaller proportion coming from the Turkish islands of Kalimno, Symi, and Khalki, in the Archipelago, these last under the Ottoman flag.

The fisheries extend all along the coast from Farwah, close to the Tunisian frontier on the west, to near Misurata on the east, a distance of about 300 miles. The grounds to the east extend to a distance of 5 to 6 miles off shore, but the produce is inferior. Those to the west produce the best qualities and extend to 10 and 20 miles off shore.

Four methods of fishing are employed, viz., the machine boat, or that provided with proper diving dresses and apparatus; the trawler, or "gangara;" the harpoon boat; and the common diver who descends with line and stone. The machine boats, which are 5 to 6 tons each, furnished with three or four diving dresses, are divided into two classes according to quality of dress; the best kind coming from England, and the second, which is cheaper, coming from France. The first class boat is manned by a crew of 20 to 22 men, of whom 10 are professional divers, and the second class boat by a crew of 14 to 16 men, of whom five to seven are divers. The first class descend to a depth of 25 to 30 fathoms, the second class to 15 to 20 fathoms, remaining below from five to 30 minutes at a time according to depth. The boats keep the sea for two months at a time, being attended by a dépôt ship of 50 to 60 tons burden in the proportion of four machine boats to one dépôt ship, a smaller craft being kept in attendance for communication with the shore for provisions, &c., as occasion

requires. These depôt ships receive every evening the produce of the day's catch, and supply stores and provisions to the crews.

Men from 18 to 50 years of age dive, but those frequenting this coast are all young men, few over 30 years. The rate of mortality among them is from 4 to 5 per cent. per season, rarely caused by accidents, but chiefly by the effects of paralysis of the limbs, produced, it is stated, by pressure on the spine through fishing in too great depths.

Partial or temporary paralysis of the limbs takes place in many cases. In some instances curable by treatment and abstinence from work, in others permanent, and necessitating their being invalided home. Strange to say those suffering from this complaint become perfectly well once they re-descend, to be again attacked on re-emerging from the sea. They receive, besides food, wages at the rate of 20*l.* to 60*l.* per annum of two seasons, the summer season lasting six months, and the winter season four months, according to skill and experience, seamen getting from 13*l.* to 16*l.* per annum, with food. The men are well fed and nourished, receiving when at work, as its nature necessitates, one solid meal (evening) during the day. Goats' flesh is largely consumed on account of its digestibility, and alleged relief to the respiratory organs.

The trawlers, or "gangara," are boats of 2 and 3 tons each, manned by five to seven men. They trawl under sail by day and night, and drag depths varying from 15 to 60 fathoms. They remain almost constantly at sea, visiting the port now and again on feast days, and for the purchase of provisions.

The men receive, besides food, in some instances, wages of 14 to 20 Napoleons per season, in others they share in the proceeds of the fishery after deduction made for cost of food, expenses, &c. The action of the trawler is naturally prejudicial to the fishery by tearing and otherwise injuring the sponge instead of removing it whole and in good condition, as is done by the machine diver.

The harpoon boat, or "harpun," is of 1 and 2 tons burden, manned by three to five men, all of whom come from the Greek islands, and are paid on the share or co-operative system. The harpoon is a many-pronged fork.

The common divers, those with line and stone, all come from the Turkish islands of the Archipelago.

During the last two and three years the two last classes of fishermen have abandoned the waters of Tripoli; the harpooner finding fewer sponges to be fished in those comparatively shallow waters where alone he can work, and has betaken himself to Crete and Cyprus. The common diver has been scared away by the attacks of the ferocious dog-fish, an ugly black creature, appearing to be all head and jaws, which three years ago bit a diver in two, and desperately wounded two others before they could be drawn up.

So far this fish has not attacked the helmeted diver, although often approaching dangerously close, the sounding of the air-

whistle on deck sufficing, on occasions, to frighten it away. It is sometimes sold in the Tripoli fish market, and the flesh, very cheap, is eaten by a few people who regard it as a remedy in cases of intermittent fever.

The fishery season lasts from April to October, when the majority of the machine boats return home to the islands with their depôt ships, taking with them the results of their fishery, and continue their work during the winter season in other and more sheltered parts of the Archipelago.

Five or six boats remain at Tripoli during the winter, going out on those rare occasions when the state of the weather permits.

The trawlers all leave, some for home, and some for the more sheltered parts of the Tunisian coast, where they continue to drag during the winter.

The Tripoli sponges are inferior to those found in the Archipelago and other parts of the Levant, and are of a reddish-brown colour. The best quality, viz., that gathered from rocks, is worth 20 to 25 fr. per oke of 2·82 lbs.; the second quality, gathered where seaweed abounds, from 16 to 20 fr. per oke; and the third quality, never sought after, but occasionally brought up by the trawlers, from 12 to 15 fr. per oke. There are few or no male sponges, *i.e.*, black in colour, and totally worthless, on the Tripoli coast. They abound, however, as was proved last year by experiments made by Tripoli divers, in the waters of Malta, where they were found in great depths, their inferiority proceeding, it is alleged, from the sterile character of the seabed, and lack of the proper nutriment necessary for the production of the superior or female sponge.

A method is said to have been recently discovered in America by which these male sponges can be made marketable by chemical treatment, but considering the great depths at which they are generally found, and the consequent risk to life, it is doubtful whether it can be availed of even if successful.

The large bulk of the crop, unbleached and unprepared, is taken at the close of the season to the islands whence the boats come, where long experience in manipulation, combined with cheap labour, prepares them for the European market in conjunction with assortments of other sponges of superior quality fished elsewhere. Thither go the buyers of European houses, who are almost invariably Greek experts. Purchases in Tripoli for foreign account and export direct to Europe take place to the extent of one-quarter to one-third of the entire crop, England taking the largest proportion, followed by France, and then Italy. They are bleached and cleaned here.

The sponge trade is eminently a close one, and efforts of outsiders to obtain a share in it have not been hitherto marked with success.

The method of bleaching and preparation practised here in respect of a quantity of sponges recently purchased for a European market was as follows: After being well soaked in the sea for cleansing purposes they were immersed in a tub of water containing a certain solution of oxalic acid, whence they emerge of

a yellowish colour, great care being required that they do not remain in the solution too long, otherwise they become "burnt" and consequently worthless. After being dried they are worked up in dry sand, then shaken and packed in boxes ready for shipment. The presence of sand in the sponges is said to be necessary to suit the requirements of consumers in certain European countries who consider it as an infallible test of the genuineness of the article. I find the same remark in a report which I made on the Syrian sponge fisheries in the year 1873.

The taxes levied on the fisheries by the Ottoman Government, and which form part of the revenues ceded to the Administration of the Public Debt, and which are levied by its local office here, are as follows :—

				Amount.	
				Currency.	Sterling.
				£T.	£
Machine boats per season..	..	..		32	30
Trawlers, according to size	..	..		3 to 6	2l. 15s. to 5l. 9s.
Harpoon boats ..	..	..		4	3l. 13s.
Common divers' boats ..	..	..		10	9

The number of boats and crews employed during the present season (1898) are as follows :—

				Number of—		
				Boats.	Divers.	Crews.
Machine..	..	..	..	53	430	533
Trawlers	..	..	..	25	..	150

The above shows a great decrease of late in trawlers, and a large increase in machine boats. There can be little doubt that the Tripoli sponge grounds like those of the Cyrenaica are being overfished, but with the gradual disappearance of the trawler and the increasing number of machine boats now being employed the take will not improbably be sustained for some years to come.

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REPORT ON THE

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Report on Trade between the United States and China by Mr. Hugh O'Beirne, Second Secretary to Her Majesty's Embassy at Washington.

(Received at Foreign Office, April 12, 1898.)

The present value of the United States trade with China, and its large expansion during the past ten years, are shown in the tabular statement which is given below. The figures (taken from the United States returns) include the shipments to and from Hong-Kong, which port forms a distributing centre for the great bulk of the foreign importations to southern China.

Growth of United States trade with China.

Year Ending June.	Imports from China.		Exports to China.		Total Trade.	
	Currency.	Sterling.	Currency.	Sterling.	Currency.	Sterling.
	Dollars.*	£	Dollars.*	£	Dollars.*	£
1897... ..	21,328,000	4,265,000	17,984,000	3,596,000	39,310,000	7,861,000
1898... ..	18,135,000	3,627,000	7,933,000	1,586,000	26,068,000	5,213,000

* If sterling is taken, roughly, to equal 5 dol. throughout the report.

The total value of the foreign trade of China was in 1896 (the Chinese returns for 1897 are not yet available) under 267,000,000 dol. (53,000,000£), so that the present volume of the United States trade with China represents more than one-seventh of the entire trade of the empire in 1896.

It will be noticed that while the importation of Chinese goods to the United States has increased but slowly, the export trade from the United States to China shows a striking expansion—from 7,933,000 dol. to 17,984,000 dol., or an increase of 126 per cent. in ten years. How the share of the Chinese market, which has been secured by the United States, compares with the shares enjoyed by Great Britain and Germany, may be seen from the table which follows. The figures given for the latter countries are those for the year 1896, the latest available. The export of United States products to China, it appears, falls short by some 700,000£, of one-half the value of the export of products of the United Kingdom, and is more than 50 per cent. larger than the German export.

Export trade.
Growth of export trade.

EXPORTS to China.

Products of—				Year.	Value.*
					£
United Kingdom	..	..	..	1896	8,540,000
United States..	..	..	..	1897 (year ending June) ..	3,596,000
Germany	..	..	..	1896	2,264,000

* In converting from Chinese currency, the Haikwan tael is taken at 0.80 dol.

Cotton goods.
Value of
Chinese
market for
American
cottons.

By far the most valuable branch of the United States export trade with China is the export of cotton goods, which in 1897 reached a value of 7,486,000 dol. (1,497,000£). It consists almost entirely of cotton cloths, coloured and uncoloured. Some idea of the importance of China as a market for United States cotton cloths, may be obtained from the following statement giving the export of those goods to China, and their total export from the United States for the years 1888 and 1897. China, it is shown, takes at present nearly one-half of the entire value of cotton cloths sent abroad by the United States.

EXPORT of United States Cotton Cloths.

		1888.		1897.	
		Currency.	Sterling.	Currency.	Sterling.
		Dollars.	£	Dollars.	£
Total export		11,335,000	2,267,000	17,281,000	3,456,000
Export to China		3,142,000	628,000	7,486,000	1,497,000

Competition
with British
cottons.

The aggregate value of the imports of cotton goods into China in 1896 was 63,394,000 dol. (12,678,000£). Of this total Great Britain contributed a value of about 5,500,000£, not inclusive of British Indian yarns and other cottons; and the United States, as we have seen, sent (in the year June 1896-97) a value of 7,486,000 dol. (1,497,000£). While the United States do not seriously compete with Great Britain in other categories, they have of late years decidedly taken the lead in drills and sheetings, as is shown below.

IMPORTED into China in 1896.

				English.	American.
				Pieces.	Pieces.
Drills	..	..	..	132,373	1,226,759
Sheetings	..	..	..	1,019,991	2,251,600
				Dollars.	Dollars.
Total value	..	..		2,428,000	8,158,000
				£	£
				485,000	1,631,000

It is worth noticing that the American goods being heavy, are, according to the report of the British Consul-General at Shanghai for 1896, especially taken by Manchuria and the north of China generally. The British Consul at Newchwang, the treaty port lying at the head of the Liaotung Gulf, states that the American drills and sheetings have the reputation in Manchuria of being far more durable than the English, and mentions that besides being used for clothing they are much in demand for making sails for the thousands of boats engaged in the bean trade between the interior and the port. The Russian cottons which have competed so successfully with the British in Persia and Central Asia have not, it may be added, as yet made their appearance in this province; but the completion of the Trans-Siberian Railroad may be expected to effect a marked change in that respect. American cottons chiefly taken by North China.

The American drills and sheetings are also predominant in Shantung. The following table gives a comparison of the imports of English and American drills and sheetings for 1896 through Chefoo, the only open port of Shantung prior to the lease of Kiao-Chow to Germany, and Newchwang, respectively. The imports through Newchwang do not of course by any means represent the whole foreign import trade of northern China.

IMPORTS of Drills and Sheetings in 1896 through Newchwang and Chefoo.

				Quantity.	
				American.	English.
				Pieces.	Pieces.
Newchwang—					
Drills	..	..	..	246,993	9,990
Sheetings	..	..	..	376,105	25,852
Chefoo—					
Drills	..	..	..	106,326	18,570
Sheetings	..	..	..	217,560	61,363
Total	..	..		946,984	115,275

American
cottons, how
shipped.

The great bulk of the United States cottons destined for the Chinese market are shipped from the New England mills to New York, and thence via the Suez Canal. But there has been quite recently a remarkable increase of shipments from the West Coast, almost entirely from San Francisco and Puget Sound, Washington. A large part of the consignments is taken by the Japanese steamship line, Nippon Yusen Kaisha, which is enabled, by the heavy Government subsidies it receives, to offer very advantageous rates of freight.

Prospects of
American
cotton trade.

There is every reason to think that the effective opening up of the interior provinces to foreign commerce will be followed by a great expansion of the Chinese demand for foreign cottons, in which the American exporters will have a very large share of interest. The dense masses of the Chinese population, clad almost exclusively in cotton cloth, offer a practically unlimited market for cotton goods. At present the cottons produced by native labour—mainly narrow-width strong cotton cloths made throughout the interior, in primitive hand-loomes at a price so low as to defy European competition—are of a class quite distinct from the European and American importations. Up to the time of the Japanese war the importation of machinery for use in the cotton manufacture was prohibited by the authorities, but the treaty of Shimonoseki removed all restrictions on the importation of machinery to treaty ports, and gave foreigners the right of erecting mills there. The fear has been expressed that with the development of the new industry the output of the mills operating in Chinese territory with the raw material at their doors, and an abundance of cheap labour at their command, would interfere with the progress of the foreign import trade. It seems still somewhat early to express an opinion on the point. In his report for the year 1896 Mr. Brennan stated that only Chinese mills were then running at Shanghai, and expressed the opinion that the ingenuity of the Mandarins would place effectual obstacles in the way of the foreign-owned mills which were then projected. H.M. Consul-General at Shanghai considered that the output of the native mills at that port would not for many years, if ever, compete with Lancashire goods, but only with the lower class importations, Japanese and Indian. The output of the native mills is still far too small to have any appreciable effect on the foreign trade; and on the whole it may be concluded that the time when China will produce cottons to compete seriously with European and American goods is not imminent.

On the other hand, the opening up of the interior of China to foreign trade would have a present effect in stimulating the demand for American and European cottons which can scarcely be calculated. It has been generally remarked by those familiar with business conditions as they exist in China to-day that in the present stagnant state of society the wants of the population are few and simple, but when foreign enterprise brings the Chinaman into contact with commodities hitherto unknown to

him, he is ready enough to form a taste for articles which evidently add to the comfort and convenience of existence. The one condition indispensable to such articles obtaining an almost unlimited market is that they should be delivered to the consumer at an extremely low cost. Great cheapness is essential in order to bring a commodity within the narrow means of the general Chinese consumer; and it may be noticed, in this connection, that the general character of the Chinaman, which combine great thrift with minute attention to detail in business transactions, has the result that a very slight difference of price in favour of one of two competing articles gives it, in the Chinese market, a disproportionately great advantage. The point is of especial interest in view of the keen competition between foreign producers for the markets of China which are now about to be opened up; it is probable that relatively slight advantages of trade, whether enjoyed in respect of railway rates, port dues, transit duties or otherwise, would tell more heavily in the Far East than in any other market of the world.

The obstacles which have stood in the past between the Chinese consumer and the foreign producer have been two-fold. On the one hand, the mercantile operations of foreigners having been confined to the treaty ports on the coast and the River Yang-tze the interior provinces have been to a great extent shut off from intercourse with Europeans, and it has been left to native dealers, wholly lacking in the enterprise necessary for the purpose, to bring European commodities to the notice of the great mass of consumers. On the other hand the price at which European goods could be placed on the interior markets was increased to an uncertain extent by the irregular and vexatious exaction of transit dues by the officials of the provinces through which the goods passed on the way to their destination. By treaty, it is true, the goods after the payment of an import duty not exceeding 5 per cent., and one transit duty of fixed amount, were entitled to reach any interior market free of all further taxes whatever; but in practice the provincial mandarins have succeeded in levying their dues, directly or indirectly, in defiance of the treaty, and it is but rarely that the merchandise has reached its destination on the terms contemplated by international arrangement.

Obstacles which have impeded trade hitherto.

The opening of the upper waters of the Yang-tze River to navigation and trade, the construction of railways into the interior, and any effectual reform of the system of inland taxation would go far towards removing the chief obstacles which have thus impeded the importation of cotton in the past; and to judge by the advances made by the trade when hampered by the most onerous restrictions, it may be inferred that its development under more favourable circumstances will be extremely rapid. To take the single instance of hosiery, a branch of the trade which, though still virtually in its infancy and relatively insignificant in value, offers a peculiar interest, since the conservatism of the Chinaman may fairly be supposed to assert itself with at

Development of hosiery trade.

least as much decision in the matter of his hose, as in regard to any other item of his surroundings. To the lowest classes of Chinese coolies, agricultural labourers, and boat people the use of socks is still unknown, while the vast majority of the more comfortable classes use the native sock, consisting of pieces of coarse cotton roughly sewn together. But among those Chinamen who have had any intercourse with Europeans there has been of late years a rapidly increasing tendency to adopt the woven sock of foreign make, and the demand for foreign socks is reported to be fast growing at certain treaty ports where they are to be found for sale to Chinese in large numbers of the stores. Only the cheapest grades command any extensive sale, and these are mainly Japanese and German. It should be said that this is not a branch of the trade in which the United States are likely to be interested in the near future; and it forms, as has been observed, an insignificant part of the cotton trade as a whole; but it has been referred to as giving some indication of the readiness with which contact with European life creates a demand in China for European products.

Kerosene.
Growth of
kerosene
trade.

The export of kerosene oil now ranks second in importance to that of cotton goods; and there are some reasons for thinking that it may equal the latter before long. The Chinese demand for kerosene is rapidly growing; and the export from the United States to this market has more than trebled in value in the past ten years:—

UNITED STATES Export of Kerosene Oil to China.

Year.	Value.	
	Currency.	Sterling.
	Dollars.	£
1888	1,466,000	293,000
1897	4,493,000	899,000

Russian
competition.

The Russian oil is the only serious foreign competitor with which the American product has to reckon, the import of Sumatran being relatively small. The Russians have greatly improved their position during the last few years; their shipments, which in 1891 represented little more than a quarter of the American, having surpassed these in 1895 by some 3,000,000 gallons; but the American oil in the following year again strongly took the lead, as is shown below:—

IMPORT of American, Russian, and Dutch Oils to China.

				Quantity.		
				1895.	1896.	Year ending June, 1897.
				Gallons.	Gallons.	Gallons.
American	..	..	..	23,065,000	33,520,000	57,498,000
Russian	..	..	..	26,566,000	23,285,000	..
Sumatra	..	..	..	2,395,000	5,151,000	..

The small amount of the American import for 1895 is attributed to a temporary shortness of the stock in the United States in that year; and the American trade has rapidly recovered its supremacy since then, the shipments for year ending June, 1897, being more than double any one year's shipments from Russia. The American kerosene is shipped in cans, almost wholly from New York and Philadelphia, via the Suez Canal; while the Russian is sent largely in bulk, in tank steamers.

The following comparative return is given by the United States Consul at Chefoo (province of Shantung) of the imports of kerosene, American and Russian, through that port in recent years. They may be supposed to represent the consumption of the foreign oil by the province of Shantung in the years named.

				Quantity.		
				1894.	1895.	1897.
				Gallons.	Gallons.	Gallons.
American	..	..	..	476,100	..	1,932,560
Russian	..	..	..	..	150,000	125,000

The Chinese demand for kerosene is regulated by the relative popularity of that commodity, and the native made bean oil; and the foreign product has amply shown its ability to displace the native article to an indefinite extent. It is impossible to estimate how great an increase of the importations may follow the opening up of the interior markets.

Next in importance ranks the export of wheat flour, which Wheat flour. reached a value of 3,394,000 dol. (678,000*l.*) in the year ending June, 1897, as against 1,501,000 dol. (300,000*l.*) in 1888. The annual increase of the trade during that period has been remarkably regular, and the Chinese are reported to show a full recognition of the superiority of the American flour over their own roughly cleaned product. A large proportion of the shipments are from the western seaports, flour being one of the principal products of the Pacific States. The erection, on any

considerable scale, of flour mills in China would no doubt seriously affect the trade.

Chemicals.

The export of chemicals, dyes, &c. (including ginseng), from the United States to China amounted to over 1,000,000 dol. (200,000*l.*) in 1897.

Iron and steel products.

Although none of the products which remain to be mentioned as articles of export from the United States to China at present approach in importance those enumerated above, there are several among them the trade in which promises to assume very different proportions from those now shown by the returns.

The export of machinery was valued in 1897 at 26,000*l.*, as against half that amount in 1895. That of saws and tools was valued at 2,000*l.* in 1897, and at 400*l.* only in 1895. The shipments of nails and other hardware have also increased. But these figures give no approximate conception of the business in iron and steel which the United States may expect to do with China in the near future. Any considerable accession of industrial activity in China would convert the Empire into a great market for these products, of which a large share should in the natural course of trade fall to the United States; Great Britain and Germany being of course the nations with which they would chiefly come into competition.

The contracts in rails, railroad materials, and locomotives connected with the projected construction of railways will, it need not be said, be of enormous value; and of these the American makers should, under favourable circumstances, secure a large proportion. America ranked second to Great Britain in 1896 as a purveyor of machinery and locomotives to Japan; and in regard to steel rails it is well known how far the American makers have improved their position since then.

Prospects of trade in iron and steel products.

In one respect the Chinese import trade in iron and steel products offers a notably better prospect of expansion than that in cotton goods. In regard to the latter, although a great increase of business may be expected in the near future, the probability has to be reckoned with that within a few years the produce of Chinese cotton mills may come into damaging competition with European and American articles; and the cheap Japanese cottons form another factor which must be taken seriously into account. But the prospect of China's supplying any considerable portion of her gigantic new-born requirements in iron and steel manufactures, railroad materials, locomotives, &c., is indefinitely remote; and the competition of Japan in this department need probably not be greatly feared. The industry on the other hand is one in which the United States have recently shown their ability to compete with all rivals. It is, perhaps, with reference to iron and steel products that the United States will watch developments in the Chinese market with the keenest interest.

Clocks, watches, and bicycles.

The trade in clocks and watches also promises, though of course in quite different proportions, a great expansion. The export to China in 1897 was nearly 8,000*l.*, as against 1,700*l.*

in 1895. It has been somewhat larger in previous years. The United States Consul in Chefoo reports a great advance in the demand for imitation gold watches. In a letter to him written by a well-informed American resident of Wei Hieu, Shantung, it is mentioned that while that province has little demand for canned goods, wheat and the like American products, it has an unlimited capacity for watches and clocks; and it is estimated that the sale of bicycles might, if pushed by proper agencies, reach a couple of millions, the demand being, as usual, for the cheapest type produced. We quote the following passage from this gentleman's letter:—

“Our chief imports into China to-day are kerosene oil, clocks, watches, canned goods, wheat, &c. Shantung has usually no demand for wheat, canned goods, and the like; but it has an unlimited capacity for cheap watches and clocks, and with a little adaptation to its use and financial ability (or inability) it could absorb a million or two bicycles with ease A wheel made strong and cheap, without too many luxuries such as pneumatic tyres and easy saddles, that could be sold for 25 or 30 dol. (gold) would go like wildfire over this province So also might the importation of cheap watches be increased indefinitely by proper agencies at the coast.”

Other articles of export to China, of minor importance, are tobacco and its manufactures (chiefly cigarettes) of which the trade is rapidly increasing, and reached a value of 276,000 dol. (55,000*£*.) in the year ending June, 1897; leather goods, woollens, meat products, provisions, &c. Other articles of export.

Before leaving the subject of the United States export trade with China it must be noted that the Pacific States, though at present taking little part in the business, are perhaps more nearly concerned in its ultimate development than any other section of the country. These States are possessed of enormous natural resources, and their manufactures while still of minor importance are computed by Mr. Mulhall to have quadrupled in 20 years. These should in the course of time find an advantageous market in the far East; and the Chinese demand must exercise a great influence on their eventual development. The Pacific seaports have already, as we have seen, begun to feel the benefit of the China trade. Pacific Coast and Chinese market.

Turning to the import trade from China, it will be observed from the table given at the commencement of this report that while there has been an increase in the imports, during the past 10 years, of some 3,000,000 dol. (600,000*£*.) the advance of the trade during that period has not kept pace with that of the export trade. The imports for the year ending June, 1897, however, still exceed the exports by over 3,000,000 dol. In 1888 the difference between the two was more than 10,000,000 dol. (2,000,000*£*.) Import trade. Growth of import trade.

The two great articles of import from China are tea and silk, which together made up a value (in the year ending June, 1897) of 2,458,000*£*., or more than half the total value of the Chinese import trade.

Tea.

The importation of tea in the year ending June, 1897, amounted to 56,932,000 lbs., valued at 7,337,000 dol. (1,467,000*l.*). This represents about half the total import of tea into the United States for that year; the balance was contributed by Japan (45,000,000 lbs.), the United Kingdom (6,000,000 lbs.), and East India (2,000,000 lbs.).

The imports from China for the years 1888, 1892, and 1897 are given below:—

IMPORTS of Tea from China into United States.

Year ending June.	Quantity.	Value.	
		Currency.	Sterling.
	Lbs.	Dollars.	£
1888	43,252,000	7,082,000	1,406,000
1892	48,951,000	7,959,000	1,591,000
1897	56,932,000	7,337,000	1,467,000

It will be observed that there has been since 1892 an increase in the amount imported, but a slight decrease of value. The import* is made up, in about equal parts, of black and green tea; for the latter of which the United States form by far the largest market of the world. A large proportion of the shipments are to Pacific ports, chiefly Puget Sound and San Francisco.

The total consumption of China tea by the United States in 1896 was, according to the Chinese customs returns, larger than the British consumption by about 1,700,000 lbs.; but fell short of the Russian consumption (inclusive of Asiatic Russia) by over 14,000,000 lbs.

Silk.

The importation of Chinese silk for the year ending June, 1897, was valued at 4,957,000 dol. (991,000*l.*), of which nearly the whole (amounting to the value of 4,694,000 dol.) was raw silk.

This, it will be seen from the figures given below, represents a slight increase on the importation of 10 years ago; on the other hand there has been a falling-off of over 500,000 dol. (100,000*l.*) since 1892:—

* For the year 1896, the last for which the Chinese returns are available.

IMPORT of Chinese Silk into United States.

Year.				Value.	
				Currency.	Sterling.
				Dollars.	£
1888	..	..	..	4,458,000	891,000
1892	..	..	..	5,531,000	1,106,000
1897	..	..	..	4,957,000	991,000

The United States market for raw silk is divided as follows between China and her two great competitors in this trade, Japan and Italy :—

IMPORTATION of Raw Silk into United States in Year ending June, 1897.

				Value.	
				Currency.	Sterling.
				Dollars.	£
Japanese	..	..	..	10,010,000	2,002,000
Chinese	..	..	..	4,694,000	938,000
Italian	..	..	..	8,010,000	608,000

The import of straw matting ranks third in value, having reached the sum of 1,661,000 dol. (332,000*l.*) in the year ending June, 1897. This trade has largely increased during the past three years. Almost equal to it in value was the import of raw wool, which reached the sum of 1,620,000 dol. (324,000*l.*) in the year ending June, 1897. Although this figure was surpassed by the raw wool import in 1893, it represents a large increase on the average of the past 10 years. The trade will no doubt suffer from the new duty on raw wools. Other articles of import.

Among articles of minor importance, which go to make up the total value of the Chinese trade, should be mentioned goat-skins, furs, spices, china, and stoneware.

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DIPLOMATIC AND CONSULAR REPORTS.

UNITED STATES.

REPORT ON

IMMIGRATION INTO THE UNITED
STATES.

*Presented to both Houses of Parliament by Command of Her Majesty,
MAY, 1898.*

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Report on Immigration into the United States, by Mr. Reginald Tower, Second Secretary to Her Majesty's Embassy at Washington.

(Received at Foreign Office, April 12, 1898.)

During the fiscal year ended June 30, 1897, the total arrivals of immigrants into the United States amounted to 230,832, of whom 228,952 were landed and 1,880 were debarred and deported at the expense of the various steamship lines by which they came to United States' shores. Of those deported, 328 were under contract to perform labour in the United States made prior to their arrival, and 1,289 were returned as belonging to the classes of aliens prohibited admittance.* In addition to the above debarred immigrants, 263, who had become public charges within one year after their arrival, were returned to the countries whence they respectively came.

* Act of March 3, 1891.

IMMIGRANTS Arrived in the United States, their Sex and Nationality, and those Debarred and Returned during the Fiscal Year ended June 30, 1897.

4

UNITED STATES.

Nationality.	Immigrants Arrived and Inspected.			Debarred and Returned.								
	Males.	Females.	Total.	Idiota.	Insane Persons.	Paupers or Likely to become a Public Charge.	Diseased Persons.	Convicts.	Assisted Immigrants.	Contract Labourers.	Returned within 1 Year after Landing.	Total Debarred and Returned.
Austria-Hungary—												
Bohemia and Moravia	947	1,007	1,954	..	..	2	..	..	..	..	1	3
Galicia and Bukovina	2,152	2,615	5,767	..	..	4	..	..	..	..	..	5
Other Austria	5,976	4,309	10,285	..	..	159	..	..	..	91	9	259
Hungary	8,698	6,327	15,025	..	..	48	..	..	..	7	14	64
Belgium	490	270	760	..	..	8	..	..	..	2	..	10
Denmark	1,212	878	2,085	..	..	2	..	..	..	..	..	5
France, including Corsica	1,209	898	2,107	..	..	15	..	..	..	..	..	18
Germany	11,899	10,634	22,533	1	1	161	1	1	..	18	48	231
Greece ..	546	25	571	..	..	2	..	..	..	8	1	11
Italy	41,446	17,985	59,431	..	..	405	..	..	..	137	35	577
Netherlands	558	332	890	..	..	11	..	..	..	8	..	19
Norway ..	3,535	2,307	5,842	..	..	6	..	..	..	..	..	7
Portugal	962	912	1,874	..	..	7	..	..	..	..	..	10
Roumania	413	378	791	..	..	2	..	..	..	..	..	7
Russia (proper)	12,486	10,314	22,750	..	..	141	..	..	..	80	24	196
Finland ..	1,458	1,608	3,066	..	1	2	..	..	..	..	..	8
Poland ..	2,654	1,511	4,165	..	..	1	..	..	..	..	..	1
Spain ..	407	41	448	..	..	1	..	..	..	..	..	1
Sweden ..	6,231	4,931	13,163	..	..	6	..	..	..	..	..	1
Switzerland	975	591	1,566	..	..	3	..	..	..	..	9	12

IMMIGRANTS Arrived in the United States, their Sex and Nationality, and those Debarred and Returned during the Fiscal Year ended June 30, 1897—continued.

(137)

Nationality.	Immigrants Arrived and Inspected.			Debarred and Returned.								
	Males.	Females.	Total.	Idiots.	Insane Persons.	Paupers or likely to become a Public Charge.	Diseased Persons.	Convicts.	Assisted Immigrants.	Contract Labourers.	Returned within 1 Year after Landing.	Total Debarred and Returned.
Turkey in Europe	110	42	152	..	..	1	..	..	..	1	..	2
England ..	5,998	3,976	9,974	..	..	96	..	..	..	12	41	163
Ireland ..	11,549	16,872	28,421	..	8	75	..	..	..	6	41	124
Scotland ..	1,054	829	1,883	..	..	7	..	..	..	..	2	9
Wales ..	539	331	870	..	..	2	..	..	..	..	..	2
Not specified ..	18	7	25	..	..	1	..	..	..	..	..	1
Total Europe ..	124,472	91,925	216,397	1	6	1,161	1	1	3	324	262	1,759
Mexico ..	42	49	91	..	..	..	..	..	..	..	..	..
British Honduras	1	..	1	..	..	..	..	..	..	..	..	..
Costa Rica ..	1	..	1	..	..	..	..	..	..	..	..	..
Guatemala ..	..	..	..	..	..	..	..	..	..	..	..	..
Honduras ..	..	..	..	..	..	..	..	..	..	..	..	..
Nicaragua ..	1	..	1	..	..	..	..	..	..	..	..	..
Salvador ..	1	..	1	..	..	..	..	..	..	..	..	..
Central America, not specified	2	..	2	..	..	..	..	..	..	..	..	..
Total Central America ..	6	..	6	..	..	..	..	..	..	..	..	..

IMMIGRANTS Arrived in the United States, their Sex and Nationality, and those Debarred and Returned during the Fiscal Year ended June 30, 1897—continued.

6

UNITED STATES.

Nationality.	Immigrants Arrived and Inspected.			Debarred and Returned.								
	Males.	Females.	Total.	Idiota.	Inane Persons.	Paupers or likely to become a Public Charge.	Diseased Persons.	Convicts.	Assisted Immigrants.	Contract Labourers.	Returned within 1 Year after Landing.	Total Debarred and Returned.
Quebec and Ontario ..	151	97	248	..	..	2	..	..	..	..	..	2
Manitoba ..	..	..	..	..	..	..	..	..	..	..	..	..
Nova Scotia ..	6	3	8	..	..	..	..	..	..	..	..	..
New Brunswick ..	1	..	1	..	..	..	..	..	..	..	..	..
Prince Edward Island ..	..	..	..	..	..	..	..	..	..	..	..	..
British Columbia ..	12	3	15	..	..	..	..	..	..	..	..	..
Newfoundland and Labrador ..	11	7	18	..	..	1	..	..	..	..	..	1
Total British North-American	189	110	299	..	..	3	..	..	..	..	..	3
Cuba ..	1,968	1,685	3,653	..	..	..	..	..	..	..	..	..
Other West Indies ..	292	255	548	..	..	20	..	..	..	1	..	21
South America ..	28	21	49	..	..	..	..	..	..	1	..	1
Turkey in Asia (Arabia and Syria) ..	3,203	1,529	4,732	..	..	74	..	..	..	2	..	77
China ..	3,334	29	3,363	..	..	..	..	..	..	..	..	..
Japan ..	1,420	106	1,526	..	..	..	..	..	..	..	..	..
Asia, not specified ..	40	1	41	..	..	11	..	..	..	..	..	11
Australia ..	65	74	139	..	..	1	..	..	..	..	..	1
Hawaiian Islands ..	29	26	55	..	..	..	..	..	..	..	..	..
Pacific Islands, not specified ..	3	2	5	..	..	..	..	..	..	..	..	..
Africa ..	24	13	37	..	..	7	..	..	..	..	..	7
Grand total ..	135,107	95,725	230,832	1	6	1,277	1	1	8	328	568	1,880

The total immigration of the last fiscal year is the smallest in any year since 1879. The number arrived was 112,435 less than the arrivals for the fiscal year ended June 30, 1896. Decrease in immigration.

The volume of immigration for each year of the decade 1884-93 is shown in the following table:—

Year.						Number.
1884..	..	..	..	..	..	518,592
1885..	..	..	..	..	..	395,346
1886..	..	..	..	..	..	334,203
1887..	..	..	..	..	..	490,109
1888..	..	..	..	..	..	546,889
1889..	..	..	..	..	..	444,427
1890..	..	..	..	..	..	455,302
1891..	..	..	..	..	..	516,258
1892..	..	..	..	..	..	579,773
1893..	..	..	..	..	..	439,780
Total for ten years						4,720,624
Annual average ..						472,062

In the years 1891 and 1893 laws restricting immigration were passed, and immigrant stations under federal supervision were established at the principal ports.

The effect of these measures is seen from the following table, which contains the total immigration for the last four years:—

Year.						Number.
1894..	..	..	..	..	..	285,631
1895..	..	..	..	..	..	258,536
1896..	..	..	..	..	..	343,267
1897..	..	..	..	..	..	230,832
Total						1,118,266
Annual average ..						279,566

This shows a decrease in the annual average of nearly 200,000.

The immigration of the last four years by nationalities, has been as follows:—

Countries of Nativity.	Number.			
	1894.	1895.	1896.	1897.
Austria-Hungary—				
Bohemia, Moravia, Galicia, and				
Bukowina	6,147	6,297	15,045	7,721
Hungary	14,700	15,206	18,880	15,025
Other Austria	17,791	11,898	18,880	10,285
Belgium	1,709	1,058	1,261	760
Denmark	5,003	3,910	3,167	2,085
France (including Corsica) ..	3,080	2,628	2,463	2,107
Germany	53,989	32,173	31,835	22,533
Greece	1,356	597	2,175	571
Italy	42,977	35,427	68,060	59,481
Netherlands	1,820	1,888	1,583	890
Norway	9,111	7,581	8,855	5,842
Portugal	2,196	1,452	2,766	1,874
Roumania	729	523	785	791
Russia (proper)	36,725	33,232	45,137	22,750
Finland	2,553	2,675	6,308	3,066
Poland	1,941	790	691	4,165
Spain	925	501	851	448
Sweden	18,286	15,361	21,177	13,162
Switzerland	2,905	2,239	2,304	1,566
Turkey in Europe	298	245	169	152
England and Wales	18,748	25,045	19,492	10,844
Ireland	30,231	46,304	40,262	28,421
Scotland	3,772	3,788	3,483	1,853
Not specified	60	24	9	25
Cuba	2,601	2,532	6,077	3,553
China	1,170	539	1,441	3,363
Japan	1,931	1,150	1,110	1,526
Mexico, South America, Aus-				
tralia, Africa, and British				
North American possessions ..	2,877	3,769	5,572	1,261
Turkey in Asia	..	..	..	4,732

Immigration
from United
Kingdom.

The total immigration from the United Kingdom of Great Britain and Ireland was in 1895, 75,137, and in 1897, 41,148, a decrease of 33,989.

The figures from England, Scotland and Ireland during the last four years are:—

Year.	Number.		
	England and Wales.	Ireland.	Scotland.
1893	28,974	..	..
1894	18,748	30,231	3,772
1895	25,045	46,304	3,783
1896	19,492	40,262	3,483
1897	10,844	28,421	1,883

Increase from
Austria-
Hungary,

From 1820 to 1840 immigration was almost entirely from Great Britain and Ireland. During the decade ending with 1840,

out of a total immigration of over half a million, German immigration first became noticeable and steadily increased until, in the decade ending with 1890 (when the total exceeded 5,000,000) it amounted to nearly a million and a half, about the same as that from the United Kingdom. The decade ending with 1890 is even more remarkable for an enormous increase in the immigration from Austria-Hungary, Italy, Russia, and Poland, which in 1880 supplied a percentage of 8·5 of the total immigration into the United States, while that from the United Kingdom, Germany, and Scandinavia amounted to 64·5. In 1890 the former countries showed a percentage of 34, and in 1894 of 42·6, while the immigrants from the United Kingdom, Germany, and Scandinavia were reduced to 57·7 and 47·9 in 1890 and 1894 respectively.

From the statistics published in the annual report of the Secretary of the Treasury for 1896, it is shown that, among immigrants of that year over 14 years of age, 28·63 per cent. were illiterate. Illiteracy in the United States by the census of 1890 was 13·94 per cent. of the population over 10 years of age.

The following table shows the amount of illiteracy amongst immigrants over 14 years of age, by nationalities, for the year ended June 30, 1896 :—

Nationality.	Number Arrived Over 14 Years of Age.	Cannot Write.	Cannot Read or Write.	Total Illiteracy.	Percentage of Illiteracy.
Portugal	2,067	17	1,589	1,606	77·69
Austria, Galicia, and Bukowina.. ..	11,165	634	6,107	6,741	60·37
Italy	57,515	25	31,374	31,399	54·59
Hungary	27,581	653	12,154	12,807	46·51
Russia (proper) ..	35,198	1,667	12,816	14,483	41·14
Ireland	37,496	153	2,473	2,626	7·00
Scotland	2,806	41	119	160	5·70
England	15,622	93	757	850	5·44
France	2,112	8	95	103	4·88
Germany	25,334	37	713	750	2·96
Sweden	13,824	73	146	219	1·16
Denmark	2,729	2	24	26	0·95
Switzerland	2,022	..	16	16	0·79

Laws restricting immigration are all of recent date.

In July, 1864, Congress passed "an Act to encourage immigration," and one of its provisions permitted the immigrant to make contracts for labour to be performed in the United States to defray the expenses of his transportation. This law was repealed in 1868, and immigrants began to come in such vast numbers that a first restrictive measure was passed in 1882. This imposed a tax of 50 c.* (2s.) upon every person entering the

Legislative restrictions.

* Increased to 1 dol. in 1894.

United States, and forbade the entry of convicts, lunatics and persons unable to take care of themselves without becoming a public charge.

The Alien Contract Labour Law was passed in 1885, forbidding the entry of labourers under contract to work in the United States.

In 1887 power was vested in the Secretary of the Treasury to deport alien labourers who had entered the country contrary to the law of 1885, and in 1888 the same authority was authorised to "take into custody and return to the country from whence he came, within one year after landing or entry, any alien labourer who is shown to have been allowed to land contrary to the prohibition of the law of 1885."

In 1891 an Act prohibited the entry of idiots, insane persons, paupers, those affected by loathsome or contagious disease, convicted criminals (except for political offences), polygamists and all whose passage is paid by others (except relatives).

An Act of 1893 provided for the physical examination of all immigrants before sailing. The commander and surgeon of the vessel must certify to the United States Consul that none of them come within the prohibition of the law. By a Treasury circular of May 3, 1893, the following declarations are required:—

Declarations.

Art. 12. There shall be delivered to the commissioner of immigration at the port of arrival, by the master or commanding officer of the vessel, lists or manifests, made at the time and place of embarkation, of such immigrants, which shall, in answer to questions at the top of said lists or manifests, state as to each of said passengers.

1. Full name.
2. Age.
3. Sex.
4. Whether married or single.
5. Calling or occupation.
6. Whether able to read or write.
7. Nationality.
8. Last residence.
9. Seaport for landing in the United States.
10. Final destination in the United States.
11. Whether having a ticket through to such final destination.
12. Whether the immigrant has paid his own passage or whether it had been paid by other persons, or by any corporation, society, municipality, or government.
13. Whether in possession of money, and if so, whether upward of 30 dol., and how much, if 30 dol., or less.*
14. Whether going to join a relative, and if so, what relative, and his name and address.
15. Whether ever before in the United States, and if so, when and where.
16. Whether ever in prison, or alms house, or supported by charity.

* The amount declared under this section during 1897 was 3,541,241 dol. (708,248.).

17. Whether a polygamist.

18. Whether under contract, express or implied, to perform labour in the United States.

19. The immigrant's condition of health, mentally and physically, and whether deformed or crippled; and if so, from what cause.

Law of March 3, 1891.—Sect. 1. The following classes of ^{Prohibited} aliens are excluded from admission into the United States: All ^{classes.} idiots, insane persons, paupers or persons likely to become a public charge, persons suffering from a loathsome or dangerous contagious disease, persons who have been convicted of a felony or other infamous crime or misdemeanour involving moral turpitude, polygamists, and also any person whose ticket or passage is paid for with the money of another or who is assisted by others to come, unless it is affirmatively and satisfactorily shown on special enquiry that such person does not belong to one of the foregoing excluded classes or to the class of contract labourers excluded by the Act of February 26, 1885 (see page 13), but this section shall not be held to exclude persons living in the United States from sending for a relative or a friend who is not of the excluded classes under such regulations as the Secretary of the Treasury may prescribe. Provided that nothing in this Act shall be construed to apply to or exclude persons convicted of a political offence, notwithstanding said political offence may be designated as a "felony, crime, infamous crime or misdemeanour, involving moral turpitude" by the laws of the land whence he came or by the court convicting.

Sect. 8. That upon the arrival by water at any place within the United States of any alien immigrants it shall be the duty of the commanding officer and the agents of the steam or sailing vessel by which they came to report the name, nationality, last residence, and destination of every such alien, before any of them are landed, to the proper inspection officers, who shall thereupon go or send competent assistants on board such vessel and there inspect all such aliens, or the inspection officers may order a temporary removal of such aliens for examination at a designated time and place, and then and there detain them until a thorough inspection is made. But such a removal shall not be considered a landing during the pendency of such examination. The medical examination shall be made by surgeons of the Marine Hospital Service. In cases where the services of a marine hospital surgeon cannot be obtained without causing unreasonable delay, the inspector may cause an alien to be examined by a civil surgeon, and the Secretary of the Treasury shall fix the compensation for such examination. The inspection officers and their assistants shall have power to administer oaths, and to take and consider testimony touching the right of any such aliens to enter the United States, all of which shall be entered on record. During such inspection after temporary removal the superintendent shall cause such aliens to be properly housed, fed, and cared for, and also, in his discretion, such as are delayed in proceeding

to their destination after inspection. All decisions made by the inspection officers or their assistants touching the right of any alien to land, when adverse to such right, shall be final, unless appeal be taken to the superintendent of immigration, whose action shall be subject to review by the Secretary of the Treasury. It shall be the duty of the aforesaid officers and agents of such vessel to adopt due precautions to prevent the landing of any alien immigrant at any place or time other than that designated by the inspection officers, and any such officer or agent or person in charge of such vessel who shall either knowingly or negligently land or permit to land any alien immigrant at any place or time other than that designated by the inspection officers, shall be deemed guilty of a misdemeanour and punished by a fine not exceeding 1,000 dol. (say 200%), or by imprisonment for a term not exceeding one year, or by both such fine and imprisonment.

Deportation.

Sect. 10. That all aliens who may unlawfully come into the United States shall, if practicable, be immediately sent back on the vessel by which they were brought in. The cost of their maintenance while on land, as well as the expense of the return of such aliens, shall be borne by the owners of the vessel on which such aliens came; and if any master, agent, consignee or owner of such vessel shall refuse to receive back on board the vessel such aliens, or shall neglect to detain them thereon, or shall refuse or neglect to return them to the port from which they came, or to pay the cost of their maintenance while on land, such master, agent, consignee or owner shall be deemed guilty of a misdemeanour, and shall be punished by a fine not less than 300 dol. (60%) for each and every offence, and any such vessel shall not have clearance from any port of the United States while any such fine is unpaid.

Sect. 11. That any alien who shall come into the United States in violation of law may be returned as by law provided, at any time within one year thereafter, at the expense of the person or persons, vessel, transportation company or corporation bringing such alien into the United States, and if that cannot be done, then at the expense of the United States, and any alien who becomes a public charge within one year after his arrival in the United States from causes existing prior to his landing therein shall be deemed to have come in violation of law and shall be returned as aforesaid.

Explanatory instructions relative to the maintenance and deportation of alien immigrants were issued in a Treasury Department Circular of July 24, 1897, to the following effect:—

In order to carry out that portion of Section 10 of the Act of March 3, 1891, which provides "that all aliens who may unlawfully come into the United States shall, if practicable, be immediately sent back on the vessel on which they were brought in," it is directed that notice of appeal from an order of deportation shall be filed promptly, and the record transmitted within 36 hours thereafter, unless satisfactory reasons for the delay accompany

the papers. Attorneys and persons appearing for detained immigrants shall not be permitted to charge a sum exceeding 5 dol. (1*l*.) in each case, unless the commissioner shall, in writing, allow an additional compensation.

In case of an immigrant not qualified to land, but who would be entitled, upon proof of certain facts, such as the case of a woman who claims to have a husband, father, or brother, resident in the United States, able and willing to support her, she may be detained a reasonable time until such relative can be communicated with. The transportation company to be responsible for her maintenance in such and like case until a final decision is reached.

A circular was issued by the Commissioner - General of *Favus*. Immigration on October 19, 1897, containing instructions to the United States inspectors as follows:—

"In view of the prevalence among arriving immigrants of *favus*, a loathsome contagious disease, you are hereby instructed to make a careful examination in order to ensure the detection of all such cases and their immediate return to the country whence they came, if possible by the steamship upon which they arrive; otherwise as soon as practicable by a steamship of the same line at the expense of the said line. . . . If any minor alien, suffering from said loathsome disease, is accompanied by its parents, one parent should be returned with such alien as its natural guardian and protector."

The Head Tax Law of August 18, 1894, imposes a duty of *Head tax*. 1 dol. for each and every passenger not a citizen of the United States arriving by steam or sailing vessel at any port within the United States. . . . "The money thus collected shall constitute a fund to be called the Immigrant Fund, and shall be used, under the direction of the United States Secretary of the Treasury, to defray the expense of regulating immigration under this Act, for the care of immigrants arriving in the United States, and for the relief of such as are in distress."

The moneys received from this head tax, which is paid directly by the various transportation lines bringing immigrants, have been more than sufficient to pay the cost of administering immigration, including salaries of employés, relief to distressed immigrants, construction, and maintenance of buildings and the addition of improvements as the occasion required to meet the demands of an increasing immigration. All this is accomplished without any cost whatever to the people of the United States for the protection afforded by a careful inspection and exclusion or deportation of the undesirable classes of aliens.

Law of February 26, 1885.

Sect. 1. It shall be unlawful for any person, company, Alien partnership or corporation, in any manner whatsoever, to prepay *contract labour* the transportation or in any way assist or encourage the importation or migration of any alien or aliens, any foreigner or foreigners

into the United States, its territories or the district of Columbia, under contract or agreement, parole, or special, express or implied, made previous to the importation or migration of such alien or aliens, foreigner or foreigners, to perform labour or service of any kind in the United States, its territories, or the district of Columbia.

Sect. 2. All such contracts shall be utterly void and of no effect.

By an Act of October 19, 1888, the Secretary of the Treasury is empowered, in case he shall be satisfied that an immigrant has been allowed to land contrary to the prohibition of the above law, to cause such immigrant, within the period of one year after landing or entry, to be taken into custody and returned to the country from which he came, at the expense of the owner of the importing vessel or, if he entered from an adjoining country, at the expense of the person previously contracting for his services.

Sect. 4 of the Act of February 26, 1885, imposes on the master of the vessel a fine not exceeding 500 dol. (100*l*.) and imprisonment not exceeding six months for each offence for allowing to be landed any alien labourer under contract to perform labour in the United States.

Sect. 5. That nothing in this Act shall be so construed as to prevent any citizen or subject of any foreign country temporarily residing in the United States, either in private or official capacity; from engaging, under contract or otherwise, persons not residents or citizens of the United States to act as private secretaries, servants, or domestics for such foreigner temporarily residing in the United States as aforesaid; nor shall this Act be so construed as to prevent any person or persons, partnership or corporation from engaging under contract or agreement, skilled workmen in foreign countries to perform labour in the United States in or upon any new industry not at present established in the United States: Provided that skilled labour for that purpose cannot be otherwise obtained; nor shall the provisions of this Act apply to professional actors, artists, lecturers, or singers, nor to persons employed strictly as personal or domestic servants: Provided that nothing in this Act shall be construed as prohibiting any individual from assisting any member of his family "nor to ministers of any religious denomination, nor persons belonging to any recognised profession nor professors for colleges and seminaries,"* to migrate from any foreign country to the United States for the purpose of settlement there.

Sect. 8 of the Act of February 23, 1887, provides that all persons included in the prohibition of the Alien Contract Labour Law shall, upon arrival, be sent back to the nations to which they belong and whence they came.

By the Act of March 3, 1891, it is deemed a violation of the said Act of February 26, 1885, to assist or encourage the im-

* The words were added by the Act of March 3, 1891.

portation of any alien by promise of employment through advertisements printed and published in any foreign country, and any alien coming to the United States in consequence of such an advertisement shall be treated as coming under a contract as contemplated in such a case. Provided this section shall not apply to States and Immigration Bureaux of States advertising the inducements they offer for immigration to such States.

Sect. 4. That no steamship or transportation company or owners of vessels shall directly or through agents, either by writing, printing, or oral representations, solicit, invite, or encourage the immigration of any alien into the United States except by ordinary commercial letters, circulars, advertisements, or oral representations, stating the sailings of their vessels and the terms and facilities of transportation therein; and for a violation of this provision any such steamship or transportation company, and any such owners of vessels, and the agents by them employed, shall be subjected to the penalties imposed by the third section of said Act of February 26, 1885, for violations of the provisions of the first section of said Act.

Many suits have been instituted against the employers of such immigrants who have been discovered to have entered into contracts in a foreign country to perform labour in the United States. Amongst those who have effected a landing, and have subsequently within one year been shown to have entered into contracts prior to coming to the United States, many have been arrested under warrants issued by the Secretary of the Treasury and deported.

During the fiscal year 1892, out of an immigration of 581,827, there were 932 alien contract labourers returned to the countries whence they came. In 1893, out of an immigration of 440,793, there were 518 returned. In 1894, 1,553 were returned, and in 1895, 2,596. Of this number, 2,419 were debarred and deported at the expense of the various steamship lines transporting them, 694 being under contract to perform labour in the United States made previous to their arrival, and 1,725 being deported as coming within the prohibitions of the Act of 1891. Further, 177 immigrants had become public charges within one year after their arrival in the United States, and were returned to the countries whence they came.

Deportations
under Labour
Contract Law.

In the fiscal year ended June 30, 1897, as has been above stated, out of an aggregate immigration of 230,832, 1,880 were debarred and deported at the expense of the steamship lines by which they came. 328 were under contract to perform labour in the United States made prior to their arrival, 1,289 were forbidden admittance under the Act of 1891, and 263 became public charges within one year after their arrival, and were likewise returned. Of this number, such as had become public charges, from causes existing prior to their arrival, were returned at the expense of the transporting lines, the others at the expense of the Immigrant Fund.

The White Star Line has affixed to the tickets issued to pre-paid steerage passengers the following notice:—

Notice to
passengers on
White Star
steamers.

"All alien passengers arriving in America are inspected by the United States authorities before they are allowed to land. No lunatic, imbecile, deaf, dumb, blind, crippled or otherwise infirm person will be permitted to land, nor any person who is without money or baggage or in any way liable to become a public charge, nor any person who has been an inmate of a prison, workhouse, or poor-house, or any charitable institutions. Nor will any alien passengers coming to America under contract to work for any person, firm, or corporation, be allowed to land. All such passengers are sent back."

In the report of the Immigration Investigating Commission, dated October 7, 1895, it is stated that a large portion of contract labourers debarred from entering are single workmen, and "it is safe to say that a majority of them belonged to the best class that apply for admission to this country. . . . Labour officials have admitted that these contract labourers are not a menace to the wage-earners of the United States, but they claim that to relax the present restrictions would enable employers to pursue the old plan of bringing labourers in by the shipload, a procedure which would practically destroy the efficacy of labour organisations."

During the year 1897, Bills were passed by both the Senate and the House of Representatives containing further restrictions upon immigration. A conference of the two Houses was summoned to adjust the differences in the two Bills, and on February 10 a measure was agreed upon, to take effect on July 1, 1897.

This Bill was vetoed by President Cleveland on the eve of vacating office, the following message returning it being read in the House of Representatives on March 2, 1897:—

"To the House of Representatives:

"I herewith return without approval House Bill numbered 7864 entitled, 'An Act to amend the immigration laws of the United States.'

"By the first section of this Bill it is proposed to amend Section 1 of the Act of March 3, 1891, relating to immigration, 'By adding to the classes of aliens thereby excluded from admission to the United States the following: All persons physically capable and over 16 years of age who cannot read and write the English language or some other language, but a person not so able to read and write, who is over 50 years of age, and is the parent or grandparent of a qualified immigrant over 21 years of age, and capable of supporting such parent or grandparent, may accompany such immigrant, or such a parent or grandparent may be sent for and come to join the family of a child or grandchild over 21 years of age, similarly qualified and capable, and a wife or minor child not so able to read and write may accompany or be sent for and come and join the husband or parent similarly qualified and capable.'

"A radical departure from our national policy relating to immi-

gration is here presented. Heretofore we have welcomed all who came to us from other lands, except those whose moral or physical condition or history threatened danger to our national welfare and safety. Relying upon the zealous watchfulness of our people to prevent injury to our political and social fabric, we have encouraged those coming from foreign countries to cast their lot with us and join in the development of our vast domain, securing in return a share in the blessings of American citizenship.

"A century's stupendous growth, largely due to the assimilation and thrift of millions of sturdy and patriotic adopted citizens, attests the success of this generous and free-handed policy which, while guarding the people's interests, exacts from our immigrants only physical and moral soundness and a willingness and ability to work.

"A contemplation of the grand results of this policy cannot fail to arouse a sentiment in its defence, for however it might have been regarded as an original proposition and viewed as an experiment, its accomplishments are such that if it is to be uprooted at this late day its disadvantages should be plainly apparent, and the substitute adopted should be just and adequate, free from uncertainties, and guarded against difficult or oppressive administration.

"It is not claimed, I believe, that the time has come for the further restriction of immigration on the ground that an excess of population overcrowds our land.

"It is said, however, that the quality of recent immigration is undesirable. The time is quite within recent memory when the same thing was said of immigrants who, with their descendants, are now numbered among our best citizens.

"It is said that too many immigrants settle in our cities, thus dangerously increasing their idle and vicious population. This is certainly a disadvantage. It cannot be shown, however, that it affects all our cities, nor that it is permanent, nor does it appear that this condition where it exists demands as its remedy the reversal of our present immigration policy.

"The claim is also made that the influx of foreign labourers deprives of the opportunity to work those who are better entitled than they to the privilege of earning their livelihood by daily toil. An unfortunate condition is certainly presented when any who are willing to labour are unemployed. But so far as this condition now exists among our people, it must be conceded to be a result of phenomenal business depression and the stagnation of all enterprises in which labour is a factor. With the advent of settled and wholesome, financial and economic governmental policies, and consequent encouragement to the activity of capital, the misfortunes of unemployed labour should, to a great extent at least, be remedied. If it continues, its natural consequences must be to check the further immigration to our cities of foreign labourers, and to deplete the ranks of those already there. In the meantime those most willing and best entitled

ought to be able to secure the advantages of such work as there is to do.

"It is proposed by the Bill under consideration to meet the alleged difficulties of the situation by establishing an educational test, by which the right of a foreigner to make his home with us shall be determined. Its general scheme is to prohibit from admission to our country all immigrants 'physically capable and over 16 years of age who cannot read and write the English language or some other language,' and it is provided that this test shall be applied by requiring immigrants seeking admission to read and afterwards to write not less than 20 nor more than 25 words of the Constitution of the United States in some language, and that any immigrant failing in this shall not be admitted, but shall be returned to the country whence he came at the expense of the steamship or railroad company which brought him.

"The best reason that could be given for this radical restriction of immigration is the necessity of protecting our population against degeneration, and saving our national peace and quiet from imported turbulence and disorder.

"I can not believe that we would be protected against these evils by limiting immigration to those who can read and write in any language 25 words of our Constitution. In my opinion it is infinitely more safe to admit 100,000 immigrants who, though unable to read and write, seek among us only a home and opportunity to work, than to admit one of those unruly agitators and enemies of Governmental control who can not only read and write, but delights in arousing by inflammatory speech the illiterate and peacefully inclined to discontent and tumult. Violence and disorder do not originate with illiterate labourers. They are rather the victims of the educated agitator. The ability to read and write, as required in this Bill, in and of itself, affords, in my opinion, a misleading test of contented industry, and supplies unsatisfactory evidence of desirable citizenship, or a proper apprehension of the benefits of our institutions. If any particular element of our illiterate immigration is to be feared for other causes than illiteracy, these causes should be dealt with directly, instead of making illiteracy the pretext for exclusion to the detriment of other illiterate immigrants against whom the real cause of complaint cannot be alleged.

"The provisions intended to rid that part of the proposed legislation already referred to from obvious hardship appears to me to be indefinite and inadequate.

"A parent, grandparent, wife, or minor child of a qualified immigrant, though unable to read and write, may accompany the immigrant or be sent for to join his family, provided the immigrant is capable of supporting such relative. These exceptions to the general rule of exclusion contained in the Bill were made to prevent the separation of families, and yet neither brothers nor sisters are provided for. In order that relatives who are provided for may be reunited, those still in foreign lands must be sent for

to join the immigrant here. What formality is necessary to constitute this prerequisite, and how are the facts of relationship and that the relative is sent for to be established? Are the illiterate relatives of immigrants who have come here under prior laws entitled to the advantage of these exceptions? A husband who can read and write and who determines to abandon his illiterate wife abroad, will find here under this law an absolutely safe retreat. The illiterate relatives mentioned must not only be sent for, but such immigrant must be capable of supporting them when they arrive. This requirement proceeds upon the assumption that the foreign relatives coming here are in every case by reason of poverty liable to become a public charge unless the immigrant is capable of their support. The contrary is very often true. And yet if unable to read and write, though quite able and willing to support themselves and their relatives here besides, they could not be admitted under the provisions of this Bill if the immigrant was impoverished, though the aid of his fortunate but illiterate relative might be the means of saving him from pauperism.

"The fourth section of this Bill provides, 'that it shall be unlawful for any male alien who has not in good faith made his declaration before the proper court of his intention to become a citizen of the United States, to be employed on any public works of the United States, or to come regularly or habitually into the United States by land or water for the purpose of engaging in any mechanical trade or manual labour for wages or salary, returning from time to time to a foreign country.' The fifth section provides, 'that it shall be unlawful for any person, partnership, company, or corporation knowingly to employ any alien coming into the United States in violation of the next preceding section of this Act.'

"The prohibition against the employment of aliens upon any public works of the United States is in line with other legislation of a like character. It is quite a different thing, however, to declare it a crime for an alien to come regularly and habitually into the United States for the purpose of obtaining work from private parties if such alien returns from time to time to a foreign country, and to constitute any employment of such alien a criminal offence.

"When we consider these provisions of the bill in connection with our long northern frontier and the boundaries of our States and Territories, often but an imaginary line separating them from the British Dominions, and recall the friendly intercourse between the people who are neighbours on either side, the provisions of this bill affecting them must be regarded as illiberal, narrow, and un-American.

"The residents of these States and Territories have separate and special interests which in many cases make an interchange of labour between their people and their alien neighbours most important, frequently with the advantage largely in favour of our citizens. This suggests the inexpediency of federal inter-

ference with these conditions when not necessary to the correction of a substantial evil affecting the general welfare. Such unfriendly legislation as is proposed could hardly fail to provoke retaliatory measures to the injury of many of our citizens who now find employment on adjoining foreign soil.

"The uncertainty of construction to which the language of these provisions is subject is a serious objection to a statute which describes a crime. An important element in the offence sought to be created by these sections is the coming 'regularly or habitually into the United States.' These words are impossible of definite and certain construction. The same may be said of the equally important words 'returning from time to time to a foreign country.'

A careful examination of this bill has convinced me that for the reasons given and others not specifically stated, its provisions are unnecessarily harsh and oppressive, and that its defects in construction would cause vexation and its operation would result in harm to our citizens.

"GROVER CLEVELAND.

"Executive Mansion, March 2, 1897."

The bill returned with the message is as follows:—

"Be it enacted, &c., that Section 1 of the Act of March 3, 1891, in amendment of the Immigration and Contract-Labour Acts, be, and hereby is, amended by adding to the classes of aliens thereby excluded from admission to the United States the following: All persons physically capable and over 16 years of age who cannot read and write the English language or some other language; but a person not so able to read and write who is over 50 years of age, and is the parent or grandparent of a qualified immigrant over 21 years of age, and capable of supporting such parent or grandparent may accompany such immigrant, or such a parent or grandparent may be sent for and come to join the family of a child or grandchild over 21 years of age, similarly qualified and capable; and a wife or minor child not so able to read and write may accompany or be sent for and come and join the husband or parent similarly qualified and capable.

"Sect. 2. For the purpose of testing the ability of the immigrant to read and write, as required by the foregoing section, the inspection officers shall be furnished with copies of the Constitution of the United States, printed on numbered uniform pasteboard slips, each containing not less than 20 nor more than 25 words of said Constitution printed in the various languages of the immigrants in double small pica type. These slips shall be kept in boxes made for that purpose, and so constructed as to conceal the slips from review, each box to contain slips of but one language, and the immigrant may designate the language in which he prefers the test shall be made. Each immigrant shall be required to draw one of said slips from the box and read, and afterwards write out, in full view of the

immigration officers, the words printed thereon. Each slip shall be returned to the box immediately after the test is finished, and the contents of the box shall be shaken up by an inspection officer before another drawing is made. No immigrant failing to read and write out the slip thus drawn by him shall be admitted, but he shall be returned to the country from which he came at the expense of the steamship or railroad company which brought him, as now provided by law. The inspection officer shall keep in each box at all times a full number of said printed pasteboard slips, and in the case of each excluded immigrant shall keep a certified memorandum of the number of the slip which the said immigrant failed to read or copy out in writing. If in any case from any unavoidable cause the foregoing slips are not at hand for use, the inspection officers shall carefully and thoroughly test the ability of the immigrant to read and write, using the most appropriate and available means at their command; and shall state fully in writing the reasons why the slips are lacking, and describe the substitute method adopted for testing the ability of the immigrant.

“Sect. 3. That the provisions of the Act of March 3, 1893, to facilitate the enforcement of the Immigration and Contract-Labour laws, shall apply to the persons mentioned in Section 1 of this Act.

“Sect. 4. That it shall hereafter be unlawful for any male alien who has not in good faith made his declaration before the proper court of his intention to become a citizen of the United States to be employed on any public works of the United States, or to come regularly or habitually into the United States by land or water for the purpose of engaging in any mechanical trade or manual labour, for wages or salary, returning from time to time to a foreign country.

“Sect. 5. That it shall be unlawful for any person, partnership, company, or corporation knowingly to employ any alien coming into the United States in violation of the next preceding section of this Act: Provided, that the provisions of this Act shall not apply to the employment of sailors, deck hands, or other employes of vessels, or railroad train hands, such as conductors, engineers, brakemen, firemen, or baggagemen, whose duties require them to pass over the frontier to reach the termini of their runs, or to boatmen or guides on the lakes and rivers on the northern border of the United States.

“Sect. 6. That any violation of the provisions of Sections 4 and 5 of this Act by any alien or citizen shall be deemed a misdemeanor, punishable by a fine not exceeding 500 dol., or by imprisonment for the term of not exceeding one year, or by both such fine and imprisonment, in the discretion of the court: Provided, that all persons convicted of a violation of Section 4 of this Act shall be deported to the country whence they came.

“Sect. 7. That notwithstanding the provisions of this or any other existing law, the Secretary of the Treasury may permit aliens to enter this country for the purpose of teaching new arts

or industries, under such rules and regulations as he may provide.

"Sect. 8. That this Act shall not apply to persons arriving in the United States from any port or place in the Island of Cuba during the continuance of the present disorders there, who have heretofore been inhabitants of that island.

"Sect. 9. That this Act shall take effect July 1, 1897."

During the second session of the present Congress, the Senate resumed consideration of the Bill which had been introduced by Mr. Lodge, Senator from Massachusetts, on March 16, 1897.

It was read a third time on January 17 last, and passed by a majority of 48 to 25. Two amendments, proposed by Mr. Spooner, Republican Senator from Wisconsin, were adopted:—

1. Providing that the ability on the part of the immigrant either to read or write should be accepted as a sufficient test of his literacy.

2. Providing that the members of the family accompanying an immigrant, rejected under the conditions of the Bill, should be returned to the countries whence they came at the expense of the steamship companies which brought them.

The following is the text of the Bill as passed by the Senate:—

AN ACT to Amend the Immigration Laws of the United States.

BE it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, that section one of the Act of March third, eighteen hundred and ninety-one, in amendment of the immigration and contract labour acts, be, and hereby is, amended by adding to the classes of aliens thereby excluded from admission to the United States the following:—

"All persons physically capable and over sixteen years of age who can not read or write the English language or some other language; but a person not so able to read or write who is over fifty years of age and is the parent or grandparent of a qualified immigrant over twenty-one years of age and capable of supporting such parent or grandparent may accompany such immigrant, or such a parent or grandparent may be sent for and come to join the family of a child or grandchild over twenty-one years of age similarly qualified and capable, and a wife or minor child not so able to read or write may accompany or be sent for and come to join the husband or parent similarly qualified and capable.

Sect. 2. That for the purpose of testing the ability of the immigrant to read or write, as required by the foregoing section, the inspection officers shall be furnished with copies of the Constitution of the United States, printed on numbered uniform pasteboard slips, each containing not less than twenty nor more than twenty-five words of said Constitution printed in the various languages of the immigrants in double small pica type. These slips shall be kept in boxes made for that purpose, and so con-

structed as to conceal the slip from view, each box to contain slips of but one language, and the immigrant may designate the language in which he prefers the test shall be made. Each immigrant shall be required to draw one of said slips from the box and read, or afterwards write out, in full view of the immigration officers, the words printed thereon. Each slip shall be returned to the box immediately after the test is finished, and the contents of the box shall be shaken up by an inspection officer before another drawing is made. No immigrant failing to read or write out the slip thus drawn by him shall be admitted, but he shall be returned to the country from which he came at the expense of the steamship or railroad company which brought him, as now provided by law, and shall also transport with him the wife, children, and other relatives herein mentioned who came with him, if they desire. The inspection officers shall keep in each box at all times a full number of said printed pasteboard slips, and in the case of each excluded immigrant shall keep a certified memorandum of the number of the slip which the said immigrant failed to read or copy out in writing. If in any case, from any unavoidable cause, the foregoing slips are not at hand for use the inspection officers shall carefully and thoroughly test the ability of the immigrant to read or write, using the most appropriate and available means at their command, and shall state fully in writing the reasons why the slips are lacking, and describe the substitute method adopted for testing the ability of the immigrant.

"Sect. 3. That this Act shall not apply to persons arriving in the United States from any port or place in the Island of Cuba during the continuance of the present disorders there who have heretofore been inhabitants of that island.

"Sect. 4. That this Act shall take effect three months after its passage."

In a report submitted to the Senate on March 25, 1897, by Mr. Lodge, accompanying the Bill, exhaustive figures are given to show the increase of immigrants within recent years from Austria-Hungary, Italy, Poland, and Russia, and it is stated that "the illiteracy test would bear most heavily on those portions of the immigration which were practically unknown in the United States until within the last twenty years, which are most alien to our people, and which it is generally agreed are the most undesirable." It is further contended that the immigrants who would be excluded by the test do not go out into the Western and Southern States, where immigration is needed, and become an agricultural population, but remain almost entirely in the Atlantic States and in the great centres of population where the labour markets are already overcrowded.

The Bill is now before the House of Representatives, no date being indicated for its consideration. It seems uncertain whether the measure will become law during the present session.

In the year 1894, the continued large immigration from Italy ^{Italian} is commented upon by the Superintendent of Immigration as ^{immigration.} follows:—"This is to be accounted for in the persistent efforts of

Italian bankers, acting as steamship agents and procurers of labour, to induce immigration, and who at the same time attend to the financial business of these ignorant people upon and after arrival. It is known that the "padrone" system exists in this country, and that it should be eradicated by the most stringent laws is admitted by all."

In 1895 the heaviest immigration of the year was from Italy, amounting to 57,515 over 14 years of age, and contained 54.59 per cent. of illiterates.

Interpretation
of immigration
laws.

Frequent cases of difficulty have arisen between the United States' authorities and the Italian Government as to the interpretation of United States' immigration laws, and in consequence of a request from the Italian Ambassador for a concise statement of the principles by which the Board of Enquiry is guided, the Hon. Herman Stump, the then Commissioner-General of Immigration, was directed to proceed to Italy in October, 1896, to furnish the desired information. As a result of the interviews between Mr. Stump and the Italian Government, a proclamation was issued by the Marquis di Rudini on November 8, 1896, embracing the explanations given by the Commissioner.

Italian
Proclamation.

The following extract from this proclamation relating to immigrants engaged abroad under labour contracts deserves attention :—

"As regards persons who would be excluded from the United States ports because they had been engaged under contract; the following rules must be kept in mind :—

"A labour contract is one by which a society, company, or an individual, expressly or implied, in writing or oral, promises a person or persons residing abroad, and before their departure, labour or service in the territory of the Republic. Under the words 'labour contract' it must not therefore be understood to be a two-sided stipulation, but some arrangement on the part of any person to furnish service or labour to a person leaving the Kingdom in pursuance of such arrangement. Hence the issue or acceptance of a ticket to the United States, to be paid in work after arrival of the immigrant at his destination, will be regarded as a 'labour contract.'

"The same may be said of written letters from anyone already in the United States to his relatives or friends to assure them upon their arrival there that they will have a specified labour for fixed wages; and it shall not be necessary that the company or person who is to employ them be specified.

"A letter by which a friend or relative is called from Italy, and in which it is simply stated that the immigrant would probably find work or service in the territory of the Union for wages, the approximate amount of which is given, shall not be considered as a 'labour contract.'

"In other words, it is not desired that the immigrant should land on American territory with a certainty of doing work which has been promised him. It is desired, on the contrary, that the immigrant should come with a hope of finding work, and he

himself must arrange the kind and terms for work with whomever he pleases only after he has been permitted to land.

"It is not necessary, as we have already remarked, that the contract be two-sided to have the immigrant excluded. It is not necessary, therefore, that the latter should have accepted the work offered him while he was still outside of the territory of the United States. The mere fact of his departure to go to perform such work is sufficient to decide his exclusion, if the Immigration Investigation Commission find, by the declaration of the immigrant himself, or by letters, or by evidence, that the proposition to do work has been made him.

"In any case the immigrant would do well to produce the original letter or letters by which he was invited to come to the United States, in order that the commission of enquiry may ascertain that there is no labour contract included therein."

After the passage of the provisions of the Immigration Acts which placed the responsibility of bringing objectionable immigrants upon transportation companies, it was represented that, in order to evade the law, undesirable emigration would seek Canadian routes, landing at Halifax and Quebec, and entering the United States across the frontier. Canadian immigration.

An agreement was concluded on September 7, 1895, and supplemented by a further agreement on March 25, 1896, to obviate the possible evasion of the United States law, and signed by the Commissioner-General of Immigration of the United States and the representatives of the following transportation companies: Canadian Pacific Railway Company, Allan steamship line, Hansa steamship line, Grand Trunk Railroad Company, Dominion steamship line, and Beaver steamship line, to the following effect:—

1. All immigrants destined to the United States shall be landed at the ports of Halifax, Quebec, Point Levis, Vancouver, Victoria or St. John, New Brunswick.

2. That all facilities as to access to immigrants shall be afforded to the immigrant inspectors of the United States at the ports of landing to enable them to make such inspection as is required by the laws of the United States.

3. Providing for the inspection by United States officials.

4. That the steamship companies shall supply the United States inspectors at the ports of landing prior to the disembarkation of immigrants with details as provided for by the United States immigration laws, and that the transportation companies shall pay to the United States inspectors the head tax of 1 dol. per immigrant.

Corps of inspectors have been established at Quebec in the summer and Halifax in the winter (when the navigation of the St. Lawrence is closed), and at Vancouver, St. John and Victoria, British Columbia. Immigrant inspectors have been placed at the principal points of entry into the United States along the border.

Statistics of immigrants entering the United States from
(137)

Canada show that from 40,000 to 50,000 Europeans entered the United States who landed at Quebec and Halifax during the 12 months previous to October, 1893, and that from that date to June, 1894, only 7,771 landed in Canada destined to the United States.

In the years ending June 30, 1895, 1896, and 1897 the number of European and Asiatic immigrants destined to the United States entering at the ports of Canada and British Columbia was:—

Ports.	Number.		
	1895.	1896.	1897.
Halifax	817	1,816	696
Quebec	1,476	2,946	2,595
Point Louis	2,413	2,449	2,351
Vancouver	1,282	2,018	4,104
St. John.. .. .	..	192	900
Total	5,988	8,921	10,646

By the terms of the supplemental agreement dated March 25, 1896, in order to prevent deception on the part of immigrants who, though actually destined to the United States, attempt to evade payment of the head tax by purchase of tickets to some point in Canada only, it is provided that, if such immigrants present themselves in the United States without the usual certificate within 30 days after their landing by any of the steamship companies parties to the agreement, they may be identified and the head tax collected.

By a Treasury circular dated September 3, 1897, collectors of customs on the Canadian and Mexican frontiers are advised that they are constituted ex-officio Commissioners of Immigration, and charged with the Immigration and Alien Contract-Labour Laws within their respective districts.

The circular states that European and Asiatic immigrants holding certificates of admission from a Commissioner of Immigration stationed in Canada will be admitted upon the presentation and surrender of said certificate at any time within 10 days from the respective dates thereof. All such immigrants unprovided with the said certificate will be detained until their right to land has been determined by the collector acting as Commissioner of Immigration, or, in case the latter is in doubt as to their right of admission, by a board of special enquiry, or, upon an appeal from said board's findings, by the Commissioner-General of Immigration.

By the Act of May 6, 1882, Chinese labourers were forbidden to come into the United States from any foreign port or place. This prohibition, which expired in 1892, was renewed by the Act of May 5 of that year, to remain in force for 10 years. The

Chinese
immigration.

provisions of this Act apply to subjects of China, or Chinese who are subjects of any other foreign power (Act of July 5, 1884).

Further, all Chinese labourers within the limits of the United States, who were entitled to remain in the United States before the passage of the Act of 1882, are required to apply to the collector of inland revenue for a certificate of residence. The term "Chinese labourer" is construed to mean both skilled and unskilled manual labourers, including Chinese employed in mining, fishing, huckstering, peddling, laundrymen, or those engaged in drying or otherwise preserving shell or other fish for home consumption or exportation (Act of November 3, 1893). Every Chinese person, other than a labourer, coming to the United States, must obtain the permission of, and be identified as entitled by the Chinese Government or of such foreign Government of which at the time such Chinese person shall be a subject, in each case to be evidenced by a certificate issued by such Government, in the English language, with full particulars according to the requirement of the Act, and, if the person so applying for a certificate shall be a merchant, said certificate shall, in addition to above requirements, state the nature, character and estimated value of the business carried on by him prior to and at the time of his application as aforesaid.

Article 3 of the treaty between the Government of the United States and the Government of China, proclaimed by the President of the United States December 8, 1894, reads as follows:—

"The provisions of this convention shall not affect the right at present enjoyed by Chinese subjects, being officials, teachers, students, merchants, or travellers for curiosity or pleasure, but not labourers, of coming into the United States and residing therein. To entitle such Chinese subjects as are above described to admission into the United States, they may produce a certificate from their Government, or the Government where they last resided, viséd by the Diplomatic or Consular Representative of the United States in the country or port whence they depart.

"It is also agreed that Chinese labourers shall continue to enjoy the privilege of transit across the territory of the United States in the course of their journey to and from other countries, subject to such regulations by the Government of the United States as may be necessary to prevent said privilege of transit being abused."

The Commissioner-General reports that the recent apprehension of a large migration from Japan into the United States was without foundation. There was a decrease in the Japanese immigration, there having arrived in 1896 only 1,110, a decrease of 40 as compared with the figures of 1895. It is believed that the Japanese in the United States are decreasing in number.

The transportation of coolies from China, Japan, or other Oriental countries to any foreign port, to be used as servants or Coolies.

apprentices, or to be held to labour or service was forbidden by an Act of March 3, 1875.

Exemptions.

A special exemption has been made in favour of foreign labour being brought to the United States in connection with the Trans-Mississippi and International Exhibition to be held at Omaha, Nebraska.

Under the terms of a joint resolution, approved by the President June 30, 1897, foreign exhibitors at the above are authorised to bring to the United States foreign labourers from their respective countries for the purpose of preparing for and making their exhibits.

The regulations provide that, upon the arrival of such employé, the collector of customs shall issue to him or her a certificate, which shall be returned to the holder preparatory to departure for the country from which he or she came.

Cattlemen.

Article 14 of the regulations for the safe transport of cattle, issued by the Department of Agriculture February 18, 1895, provides that "all cattle attendants shall be under the control of owners and agents of steamships, and men so employed shall be reliable and signed as part of the ship's crew and under the control of the captain of said vessel."

On March 31, 1894, the Treasury Department laid down that all cattlemen returning to ports within the United States, holding certificates duly signed by a Commissioner of Immigration, Collector of Customs, or an Immigrant Inspector, should be allowed, upon identification, to enter the United States without further examination by the custom or immigration officers, to whom the certificates were to be presented.

It was found that the immigration laws were being evaded by these certificates being transferred or sold by their holders, and consequently, on October 18, 1897, the Treasury Department revoked the circular of 1894, and provided that in future all cattlemen must be subjected to the same examination as aliens entering the United States.

Are
immigrants
desired in the
United
States?

The Immigration Restriction League wrote letters to the Governors of the States, asking whether immigration was desired in their respective States, and, if so, from what races? The replies show that out of the 26 States replying to the query, 8 want no more immigrants at all at present. In the others, English and Scotch are asked for by 7, Irish or other English-speaking by 6, Scandinavians by 12, Germans by 14, French by 3, Swiss by 2, Dutch and Belgians by 1.

The following is a summary of the replies received:—

Michigan: English-speaking are most desirable, with Scandinavians and Germans next.

Wisconsin: Germans, because they all work and are generally very prosperous.

Kansas: Germans, English, French, Swedes, and Norwegians.

North Dakota: Scotch, English, Scandinavian, and Germans.

Oregon: As farmers and farm hands are our principal need,

we prefer those from the British Isles, France, Italy, Germany, and Scandinavia.

Montana: Farmers from the north of Europe, where climatic conditions approximate to those of Montana.

Idaho: Scandinavians or Germans are preferable.

Colorado: First-class. For horticulture and agriculture we prefer Germans and Scandinavians.

Maine: Scandinavians, but not others.

New Hampshire: Swedes and Germans for farmers and women for general housework.

Pennsylvania: Our own labouring people are in sufficient number to supply the demand.

Illinois: Not seeking further immigration just at present.

Iowa: Any class of foreigners very undesirable at present time.

Minnesota: No need for unskilled labour of any kind at present time.

Nebraska: Scandinavians, Germans, Irish. No demand for labour of any kind at present.

Mississippi: Germans, Swedes, Italians, but not sure any immigrants are desirable as labourers at present.

California: There is an over-supply of labourers in every branch of industry. There is no desire anywhere for immigration of the nonproducing classes, who are dependent upon manual labour for the means of subsistence.

Massachusetts: Further immigration not needed.

New York: No necessity at present for encouraging further immigration.

Rhode Island: Every trade is more than supplied with all the labour needed.

Kentucky: British, Germans, Swiss, Scandinavians. Poles, Huns, and Latin races are not desired, except individuals who come of their own volition.

Virginia: English, Scotch, Irish, Germans, and Swedes.

Georgia: German, French, Hollanders, Belgians, Scandinavians, and Swiss.

Arkansas: American, German, and English-speaking immigrants—farmers, but welcome all desirable immigrants.

Florida: First preference for English-speaking.

Texas: Desire immigrants who are sober, industrious, worthy, and who will make good citizens.

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UNITED STATES.

REPORT ON THE

IMPROVEMENT OF THE ENTRANCE TO GALVESTON
HARBOUR AND THE COMMERCIAL RESULTS
THEREFROM.

REFERENCE TO PREVIOUS REPORT, Annual Series No. 1836.

*Presented to both Houses of Parliament by Command of Her Majesty,
JUNE, 1898.*

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NOTE.—The sterling calculations in this report are made at the rate of 5 dol. to the 1*l*.

Reference to previous Report, Annual Series No. 1336.

*Report on the Improvement of the Entrance to Galveston Harbour
and the Commercial Results therefrom*

By MR. CONSUL NUGENT.

(Received at Foreign Office, May 23, 1898.)

During the last quarter of the present century, when the production of the United States has increased by leaps and bounds, it has been the policy of the Federal Government to foster and maintain the export of such increased production by the improvement of many harbours, especially in the Southern States and those bordering on the Gulf of Mexico, by means of jetties, dredging and other engineering works. The success attending the scheme of Captain Ead at the mouth of the Mississippi—a scheme originated and carried out by private enterprise, has spurred on in friendly emulation the engineer officers of the United States army with the result that during the last decade many notable engineering works have been carried to a successful termination in the harbours of this country, culminating in the recent completion, after over 20 years work, of the gigantic jetties at Galveston—probably the largest works of the kind in existence.

Policy of United States Government to foster trade by improving harbours.

In order to understand the nature of the work and of the obstacles to be overcome it is necessary to give a short description of Galveston Bay.

Description of Galveston Bay.

This is a shallow body of water separated from the Gulf of Mexico by an island of sand some 27 miles in length and from 1 to 2 miles in width, and by a spit 20 miles long called Bolivar Peninsula.

The city of Galveston is situated on the eastern end of the island.

Galveston Bay is connected with the Gulf by St. Louis Pass at the western end of Galveston Island and by Bolivar Channel at the eastern.

The total area of the bay is about 490 square miles, of which 450 square miles depend on the Bolivar Channel or Galveston entrance, which is the main inlet to the bay.

The greater part of the bay is quite shallow, but to the north, in front of Galveston, there are considerable depths found, and this area forms the harbour of Galveston proper.

The average rise and fall of the tide is 1.1 foot.

Original
obstacles to
navigation.

The obstacles to navigation which were originally encountered were an inner and an outer bar. The former, prior to any work being done, had about 11 feet of water over it and the latter $9\frac{1}{2}$ feet, both at mean low tide.

The outer bar—semi-circular in shape—stretched from Galveston Island on the west to Bolivar Peninsula on the east for some 10 miles.

The inner bar was a shoal which obstructed Galveston Channel and which in 1867 had but $9\frac{1}{2}$ feet of water over it at mean low tide.

The material composing the bars had all the characteristics of a quicksand, being of fine round sand, comminuted shell, and sand and shell mixed; and, owing to the action of storms, the bars and channels were constantly changing shape.

Such were the obstacles met by the engineers in 1874 when the first project for improving the entrance took shape.

Plan of 1874.

A plan for improving the entrance to Galveston Harbour was devised by Major Howell, United States army, in 1873, and was directed towards the removal of the inner bar and the deepening of the outer bar to a possible 18 feet.

There was then in existence a dyke, built by the town, and Major Howell proposed to continue this dyke in a north-easterly direction to the edge of Bolivar Channel and thus to cause a scour sufficient to remove the inner bar. By prolonging this dyke seaward to the slope of the outer bar and by constructing a similar and parallel dyke from Bolivar Point seaward he hoped to deepen the outer bar to 18 feet.

Gabionnade
system.

As there were in 1873 no stone quarries known or opened in Texas accessible by rail or water, and as the procuring of stone from the north was very costly, Major Howell devised and proposed the use of a gabion, covered on the inside and out by hydraulic cement, to be filled with sand and to take the place of stone in the construction of the proposed dykes or piers.

These jetties were to be submerged jetties, since they were not built up to the plane of the mean low tide, and they were expected to catch the drifting sand brought by the littoral currents until they were covered by it.

Trial of plan
on a small
scale.

This project was approved as to its general scope by a special board of the Engineer Corps of the United States army, and a trial of the gabion scheme, on a small scale, was recommended to be made. Accordingly, from November, 1874, to September, 1875, some 1,200 feet of jetty was built out from Fort Point, in which 530 gabions were placed.

In 1877 this south dyke or jetty was prolonged to the verge of Bolivar Channel with the anticipated effect of contracting the waterway between Fort Point and Pelican Spit Shoals, and of thus causing the scouring of the inner bar to a depth of 20 feet at mean low tide.

At this period, 1877, the north, or Bolivar Jetty, was also commenced, and by 1880 had been extended seaward 10,220 feet,

of which 513 feet inshore was pile construction and 9,707 feet a gabionnade.

By the middle of 1880, on inspection by the Board of Engineers, it was ascertained that the gabionnade plan was not a success, and the jetty work thus constructed was found either buried in the sand or destroyed. Gabionnade plan not a success.

The Board therefore recommended a modification of the plan.

The plan, as proposed by the Board in 1880, was to build the jetty of layers of brush mattress, about 18 inches thick, and layers of stone—about one-third of the volume to be stone. Plan of 1880.

Under these plans a south jetty was built out to a length of 22,551 feet. The bottom width increased from 30 to 120 feet in going from the shore to the sea, whilst the top which was rounded may be said to have been from 12 to 24 feet.

In 1885 this jetty was found to have settled badly, and, upon reports being received from Major Mansfield, United States army, the engineer officer in charge of the work, it was determined to revise the whole scheme once more, and this was accordingly done by a Board of Engineer officers in 1886. Revision of plan of 1880, consequent on settling of jetty.

The plan then drawn up, which is practically that under which the work was carried to a highly successful conclusion, was as follows :— Plan of 1886.

The erection of two parallel jetties (to be supplemented by dredging) to the crest of the bar, the south jetty to be 32,000 feet and the north jetty 22,000 feet in length approximately.

The jetties to be 7,000 feet apart at their outer ends. The new south jetty to be constructed on the old south jetty so as to utilise existing work.

The order of construction to be as follows :—

1. To complete the south jetty to the crest of the bar.
2. The same for the north jetty.
3. To carry both to the 30-foot curve.

The following was the proposed method to be followed in the actual construction of the jetties. Method of construction.

Top of jetties to be 5 feet above low water, but to slope to level of ground at their inner ends.

Foundations to be a brush mattress 3 feet thick, covered at once by 4 feet of rubble, with widths increasing from 60 feet near shore to 90 feet at bar and 100 feet beyond.

Jetties to be 12 feet wide on top, and of rubble stone, with side slopes of 1 on 1 out to crest of bar, except for about 10,000 feet inside of crest, for which distance the rubble jetty is to be 22 feet wide at low water level, and on this a concrete mass 12 feet wide is to be constructed, reaching from 5 feet above low water to 2 feet below.

The rubble side slopes, from about 6 feet depth outward to consist of heavy stone blocks, whose weight at the bar reaches 6 or 8 tons.

From crest of bar to 30 foot curve jetties to be concrete piers, their widths being 18 feet at crest of bar, 24 feet at 18-foot curve and outside.

These piers to be built either of concrete in huge bags, as the

breakwaters at Newhaven, England, and Aberdeen were built, or of concrete in large blocks; in either case being topped with concrete in mass.

Shannon
contract.

Under the above scheme a contract was entered into on April 22, 1887, with Messrs. A. M. Shannon and Co., to raise the old south jetty, beginning it at Fort Point, to a height of 5 feet above mean low water level, and to complete it as far as the funds would go.

In July, 1887, this firm began the delivery of stone, and continued the execution of their contract until June 30, 1889, by which time it was to have been completed, but was only two-fifths done.

The time was therefore extended to December 31, 1889, and subsequently to August 30, 1890.

Work done
under
Shannon
contract.

At the close of the contract the condition of the work was as follows:—Lineal feet of jetty completed, 19,400; incomplete, 150; total, 19,550.

Of this 7,964 feet was a shore connection between Fort Point and the shore, which in 1888 it had been found advisable to construct.

Some 4,850 feet of the remainder was constructed with a clay core, but the major part of the construction was by pitching out from trucks riprap stone on the existing old mattress work and bringing it up to water level; the trucks being run out on a light railway built for the purpose, which was kept in advance.

Blocks were then deposited on the sides to a height slightly above the riprap, then more riprap between the blocks, then more blocks covering the outside to a proper height.

The means used were chiefly manual labour, with a steam derrick to place in position the larger blocks between low water and the top of the jetty.

Contract with
Messrs.
O'Connor
and Co.

On June 2, 1891, a contract was entered into with Messrs. O'Connor, Laing, and Smoot, of Dallas, Texas, and it has been under this contract and its continuations from time to time that the work has been successfully concluded.

The contractors during the months of July and August were engaged in overhauling the work done under the previous contract, and it was not until September, 1891, that the work at the port was actually begun.

The method employed was much the same as had been in use under the previous contract, excepting that the protection from the 19,400-foot mark, where Messrs. O'Connor, Laing, and Smoot commenced their work, was composed of heavy granite blocks.

Methods of
construction.

The general construction of the jetty work, which had been slightly modified from time to time as occasion required, was now practically settled once and for all, and was continued till the completion of both jetties upon the following plan:—

A trestle is first built, some 600 or 800 feet in advance of the finished work, and the caps, stringers, and rails are properly secured by straps, bolts, and spikes.

Then large riprap of sandstone is unloaded on each side of the line to about 3 feet from the bottom.

In the centre between the mounds thus formed, there is unloaded small riprap to the same height as the mound, the whole forming an apron about 3 feet thick, with a base of about 20 feet wide, on top of the old south jetty mattress work, built under the plan of 1880.

The end of the mattress work was reached at the 31,000-foot mark, and from there to the end this apron was built on the sand foundation, and was at least 30 feet wide.

The trestle and apron are kept in advance, and the apron is now brought up to the level of mean low water with large riprap, and filled in with small riprap as before.

This riprap slope is now protected with granite blocks to slightly above mean low tide.

The piles are next secured by braces above the ravages of the teredo worm by a system which also acts as an anchor and underpinning. Then the crest of the work between and around the bents and under the bracing and underpinning is filled with large and small riprap as before, and this, in its turn is covered with selected granite blocks.

The spaces between the blocks are then filled with riprap, properly wedging and levelling-off the crest.

The same plan of construction was followed on the north jetty, which was commenced in April, 1893.

The granite blocks are as nearly as possible, cubical, and are fitted into each other as nicely as can be done without the use of mortar.

They are not less than 1 ton each in weight for the first mile, 2 tons for the second, 5 tons each from there to the crest of the bar, and 10 tons each for any extension beyond that point it may be deemed necessary to make.

The slope of the outer angle is about 2 upon 3, from a top of 12 to 15 feet.

For example, with a top 12 feet wide, 5 feet above mean low tide, the base, in 17 feet of water, is about 66 feet.

Under the present contract, during which the greater part of the work has been accomplished, the sandstone used has been chiefly procured from Ledbetter, Texas, on the Houston and Texas Central Railway, and from Quarry Station, on the Gulf, Colorado, and Santa Fé Line.

The distance that the sandstone was brought varied from 130 to 206 miles, according to the quarry.

The granite all came from Granite Mountain, Texas, some 294 miles from Galveston.

As usual in all works carried out under United States Government supervision, the inspection of the stone used was very strict, and the contractors were firmly held to the terms of the contract.

On arrival of the stone at the contractors' yard at Fort Point it was inspected as to its hardness, toughness, weight and durability.

The hardness and toughness were determined by use of the

Situation of
quarries.

Distance
stone and
granite were
brought.

Inspection of
stone.

Methods of
inspecting
stone.

hammer, the weight by specific gravity as follows:—A large sample of the stone of known weight was immersed dry in a tank filled with water. The displaced water was caught and weighed, and the sample of stone re-weighed wet, the amount of water absorbed by the sample being also noted.

From the specific gravity data and the general appearance of the stone, durability was determined, this being supplemented by immersing specimens of the stone in sea water, and carefully noting disintegration or change of any kind. "M. Brard's method" of testing stone was also tried.

Transport of
stone to
south jetty
works.
Method of
using stone
for south
jetty.

As far as the south jetty was concerned, the method of getting out the stone to the portion of the work where it was needed was simple. The sandstone riprap was brought on ordinary flat trucks from the quarry, and was run out on the trestle to the point where it was to be unloaded, which latter operation was done by hand.

The granite blocks for the south jetty were taken out on the trestle in the same way, but the unloading was done by large floating derricks.

Of course both sandstone and granite were inspected and weighed by the Government employes before being sent out on the trestle.

With the commencement of the north jetty, however, in 1893, a new condition of affairs arose and the stone had to be transferred over to Bolivar Point.

Method of
transferring
stone for use
on north
jetty.

The following was the method employed:—The cars, after being inspected and weighed, which was at first done at the yards at Fort Point, and subsequent to July, 1893, at Bolivar Point, were run down to a wharf where a movable apron was situated, adjusted to the rise and fall of the tide.

An ordinary freight barge that had been adapted for transferring railway cars had been previously put in place, with the apron resting on the barge.

The barge and apron, with their floating and movable track practically abutting and coinciding, were held in place by a system of lines, cap-stands, and fender piles.

The cars were then pushed by the locomotive over the apron on to the barge. The tug then took the barge in tow and transferred the load to the contractors' similarly arranged wharf at Bolivar, where another locomotive took it to the storage yard.

Then, as the necessities of the work demanded, the stock in the storage yard was drawn on trains made up and sent to the front as on the south jetty.

Transfer of
stone in bulk.

The contractors' also transferred stone in bulk as follows:—Cars were inspected and weighed, as above, at Fort Point, and run out on the south jetty abreast of the north jetty, and unloaded on a barge, which was towed to the north jetty and unloaded on the work.

This system, however, gave from 1 to 2 per cent. of lost material (contractors' loss), and required extra inspection on the part of the Government to prevent waste.

As regards the handling of the granite blocks, the following method was made use of:—

On the arrival of the contractors' tug "Hortense," in August, 1893, a barge line was established between Clinton, in Harris County, on Buffalo Bayon and north jetty, Bolivar, Galveston County. Method of handling granite. Barge line from Clinton to north jetty.

The barge line only handled granite blocks.

The weight of the granite was at first computed from displacement of barges, but this becoming unsatisfactory, another arrangement was inaugurated as follows:— Plan of computing weight of granite blocks.

The stone was delivered at Clinton yards on cars and weighed by a Government inspector on standard railway track scales, put up by the Government at that place in May, 1894. After being weighed the cars were run on a siding close enough to the bayon (or river) bank to enable a steam derrick to transfer with facility the blocks from cars to barge.

Another inspector kept the number of blocks on each car with the car's number and initial; also the number of cars on each barge, and name of each barge, noting any blocks that may be lost overboard.

This information was forwarded to the Galveston office.

The weigher's report was also forwarded with car number, initial, weight, and number of blocks on a car.

As soon as the barges were loaded they were towed from Clinton down Buffalo Bayon, San Jacinto River, through Mergan Canal and Cut, Shlp Channel, Galveston Bay to north jetty, Bolivar.

On their arrival off Bolivar transfer wharf the barges were measured while loaded for displacement. They were then towed to the front and unloaded by a floating derrick, which handed and transferred the granite block by block from barge to riprap mound.

The size and quality of the block and the loss occasioned by the carelessness of the derrick gang, or faulty mechanical appliances were noted by an inspector.

As soon as the barge was unloaded it was measured light for displacement.

The weight of stone was then computed from the measurements taken on the barge loaded and unloaded.

The tonnage thus determined from displacement was forwarded to Galveston to be compared with the Clinton tonnage from track scales. The barge line was started with three barges in August, 1893, another was added in September, 1893, and a fifth, with a water barge, in December, 1893; in all five stone barges, one transfer barge or water barge, tended by two tugs with double crews towing and transferring, and, when necessary, working night and day.

The stone barges have a capacity of 750 tons, but were loaded to only 570 to 650 tons, according to the depth of water in Buffalo Bayon.

It may here be noted that a vast amount of other material Contractors' plant.

was acquired by the contractors beside the above-mentioned barges.

A summary of the plant employed and owned by them shows as follows :—

Two steam tugs of 65 and 21 tons net register respectively, six barges for transporting stone, two derrick barges, each with two derricks of three drums each, derricks of 20 tons capacity ; one transfer barge, one water barge, four locomotives, two steam pile-drivers, one steam-derrick car, five material and flat cars, one inspection car, one inspection coach. This does not include railway line, wharves, buildings, &c., nor the machinery and plant at the two quarries.

Value of the plant.

The estimated total value of the contractors' plant used during the work was 79,654*l*.

Some idea of the vast amount of material used and the gigantic nature of the works, will be gathered from the following figures :—

Length of jetties.

The south jetty is 33,100 feet, or 6·28 miles in length ; the north jetty 25,300 feet, or 4·79 miles, making a total length of 11·07 miles of completed jetty.

Amount of stone and granite used during present contract.

Under the present contract, up to January 1, 1898, there were put into these jetties the following amounts of stone and granite respectively :—

				Quantity.	
				Stone.	Granite.
				Tons.	Tons.
South jetty	..	..	..	337,775	210,970
North „	..	..	..	721,019	395,269
Total	..	..	..	1,058,794	606,239

This shows a total of 1,665,033 tons of material used during the present contract alone, not to speak of that used by previous contractors.

Progress of the work from 1887 to 1896.

Having now fully considered the methods employed with the exception of dredging, which I will mention hereafter, it is interesting to note the progress made and the results, as far as deepening the entrance is concerned.

The following table shows the yearly progress of the jetty work from 1887 to 1896 :—

TABLE showing Yearly* Progress of Galveston Jetty Works.

Yearly
progress of
jetty work.

Year.	South Jetty.		North Jetty.	
	Complete.	Outermost Point during Year.	Complete.	Outermost Point during Year.
	Feet.	Feet.	Feet.	Feet.
1887	5,660	..	..	..
1888	15,200	17,375	..	..
1889	18,000	19,628	..	..
1890	19,400	19,868	..	..
1891	24,000	26,923	..	..
1892	32,000	32,829	1,500	3,700
1893	32,000	32,829	10,000	16,200
1894	32,000	32,829	18,500	22,500
1895	33,100	35,020	23,300	25,110
1896	33,100	35,020	25,300	25,907

* These years are the United States fiscal years, ending on June 30 in each year. The progress shown in 1896 is up to December 31, however.

In 1887, the first year of work under the present scheme, the depth on the outer bar was only $12\frac{3}{4}$ feet at mean low tide, whilst that on the inner bar was $20\frac{1}{4}$ feet. Gradual increase of depth of water over bar.

During the year ending June 30, 1889, these both increased to $13\frac{1}{4}$ feet and 21 feet respectively.

Upon the commencement of work under the present contract in 1891 and during 1892 the depths were precisely the same, but during the year ended June 30, 1893, the depth on the outer bar increased to 14 feet, and there was a depth of 23 feet where the inner bar used to be, both at mean low tide.

By June, 1894, the depth on the bar had increased to $14\frac{1}{2}$ feet.

Hitherto the gain had been very slow, but the advanced construction of the north jetty, aided by dredging operations, now caused rapid improvement, and by June, 1895, there was a channel to sea $17\frac{3}{4}$ feet in depth at mean low tide and 340 feet wide. By September, 1895, 20 feet was reached, and by June, 1896, $22\frac{1}{4}$ feet. Since that time there has been marked gain, and the depth of the channel is now over 27 feet.

This depth is considered quite sufficient for the commercial needs of the port, and the efforts of the engineers are now more directed to the widening and straightening of the channel rather than to adding to its depth. Present depth considered sufficient.

The plan of 1886, under which the major part of the work at Galveston has been done, contemplated the use of dredging, if necessary. Early in 1895 it was considered by the engineers that the work had reached a point when dredgers could be used with good results. A contract was therefore entered into with Messrs. O'Connor and Smoot for dredging operations. They employed the suction dredger "Jumbo," which not being self-propelling had to be towed. Dredging operations.

As the tug towing the dredger was not powerful enough to tow against a head wind and strong current only a few loads could be removed during the 24 hours. This dredger remained at work until September 15, 1895, during which time 213,596 cubic yards were removed.

On September 26, 1895, there was accepted by the engineers the sea-going dredger, "General C. B. Comstock," built for the United States. The work done by this dredger was as follows:—

Amount of
material
dredged.

..	..	..	Cubic Yards.
1895 (September 26 to December 31)	..	..	74,891
1896 (January 1 to December 31)	..	..	715,305
1897 (January 1 to December 31)	..	..	756,711

The material dredged was largely stiff clay, and the operations were directed not only to increase the depth of water, but to widen and straighten as much as possible the channel.

Cost of the
improve-
ment.

Having now considered the methods of carrying out the improvement at Galveston, and their material success, the question of cost naturally comes to mind.

Amount
appropriated
and expended.

To sum up briefly, up to July, 1897, there had been appropriated by the United States Government about 1,695,683*l*. for this work, of which 1,639,734*l*. had been expended.

The following statement drawn up by the engineer's office here on that date shows the details of these appropriations and expenditures, and is sufficiently recent for all practical purposes:—

Table
showing
details of
appropria-
tions and
expenditures.

TABLE showing Expenditure on Government Works for the Improvement of Galveston Harbour during the Years 1870-97.

APPROPRIATIONS.

						Amount.
						£
Amount appropriated by United States Government to date, July 31, 1897	..	..	..	..	..	1,695,600
Received from other sources	..	..	..	..	..	83
Total	..	..	..	..	..	1,695,683

EXPENDITURE.

	Amount.
	£
Amount expended on previous projects	295,581
" " present project.. .. .	1,298,892
" of retained percentage due contractors	10,000
Balance in hand, July 31, 1897	91,710
Total	1,695,683

DETAILS of Expenditure.

	Amount.
	£
Amount expended on early operations, 1870-79	120,950
Amount expended on south jetty, under project of 1880	174,649
Do. do. (Shannon contract).. .. .	114,271
Cost of shore branch (same contract)	32,115
Amount expended on south jetty (O'Connor, Laing, and Smoot contract)	366,135
Cost of shore branch (same contract)	2,713
Amount expended on north jetty (same contract)	670,591
Cost of dredging by contract	15,121
Cost of dredger "Comstock," and working expenses	37,857
Contingent expense of work during July, 1897	69,571
Total	1,603,973

RECAPITULATION of the Above.

	Amount.
	£
Shore branch (south jetty)	34,829
South jetty, including amount probably saved from former expenditures, under project of 1880, and estimated at 114,800%, by serving as apron, &c., for latter construction, and also 20,000% appropriated by city of Galveston	615,206
North jetty	670,591
Total cost of present jetties	1,320,626

The following tables show with great exactness the cost of Tables the work per linear foot on each of the two jetties. They were showing cost published in 1896, but there has been so little work added, per linear comparatively speaking, since then that they are sufficiently foot of both recent to show the cost per foot of almost all the jetty work:— jetties.

TABLE showing Average Cost per Linear Foot of North Jetty between Stations. (Cost does not include Office and Inspection Expenses.)

Stations.	Distance.	Depth of Water.		Cost per Linear Foot.	Remarks.
		Maxi- mum.	Mini- mum.		
0 to 15	Feet. 1,500	Feet. ..	Feet. ..	Dollars. 15.53	Shore branch
15 20	500	8	0.5	35.68	Granite on crest, none on slope
20 30	1,000	11	7.5	67.65	Granite on crest and on slope, from Station 24
30 40	1,000	11.5	9	69.60	
40 50	1,000	11.5	9.5	71.27	
50 60	1,000	11.5	6.5	66.53	Quicksand reef
60 70	1,000	8	5	70.06	Quicksand reef
70 80	1,000	9	6.5	76.51	Quicksand reef
80 90	1,000	12.5	9	100.96	
90 100	1,000	15	11	113.34	
100 110	1,000	19	15	124.82	
110 120	1,000	18	16.25	126.90	
120 130	1,000	21	17.25	138.88	
130 140	1,000	19	16	128.28	
140 150	1,000	16.5	16	135.83	
150 160	1,000	16.5	15	122.96	
160 170	1,000	16.4	16.10	125.99	
170 180	1,000	19	16	152.95	
180 190	1,000	17	15.5	148.89	
190 200	1,000	19	11.5	154.25	Outer bar
200 210	1,000	13.5	7.5	151.48	
210 220	1,000	18	8.5	162.43	As the work progressed there was thrown up a small ridge of sand, the original depth over the bar at the axis of the jetty was 11 feet
220 230	1,000	22.5	21.5	281.97*	
230 240	1,000	24.5	21.5	184.34	Granite unloaded to Station 235
240 250	1,000	28	24.5	36.66	Apron

* The rip-rap mound, before it had been protected on its slope, was washed down and flattened, requiring more rip-rap to build it up and more granite to cover it.

TABLE showing Average Cost per Linear Foot of South Jetty between Stations. (Cost does not include Office and Inspection Expenses.)

Stations.	Distance.	Average Depth of Water.	Cost per Linear Foot.	Remarks.
	Feet.	Feet.	Dollars.	
0 to 79 + 64	7,964	..	19.46	Shore connection across old channel, average height 1'07 ft. above mean low tide
79 + 64 to 84 + 64	500	3	34.28	Shore branch
84 + 64 95 + 64	1,100	2.45	28.54	
95 + 64 107 + 64	1,200	1.50	36.52	Clay core
107 + 64 138 + 64	3,100	5.70	72.37	Clay core
138 + 64 144 + 12	548	9.50	73.54	Clay core
144 + 12 150	588	7.50	60.54	
150 to 160	1,000	7.80	56.64	
160 170	1,000	8.65	55.68	
170 180	1,000	7	40.53	
180 190	1,000	7.50	43.78	
190 200	1,000	10.95	79.85	Granite protection from Station 194
200 210	1,000	10.35	81.36	
210 220	1,000	9.60	76.12	
220 230	1,000	7	72.70	
230 240	1,000	8.70	76.81	
240 250	1,000	9	80.65	
250 260	1,000	9.30	82.95	
260 270	1,000	10.20	89.91	
270 280	1,000	9.10	80.11	
280 290	1,000	9.20	74.24	
290 300	1,000	9.10	78.50	
300 310	1,000	10.10	78.93	End of mattress work
310 320	1,000	16.50	136.07	Sand foundation
320 330	1,000	23	198.05	Old apron, 320-328 + 39
330 340	1,000	23.5	156.35	Granite unloaded to Station 336, only placed to 331
340 350	1,000	22.9	47.81	Apron

The benefits that Galveston has derived, commercially speaking, from the gradual improvement of the entrance to Galveston harbour have been enormous, and are, as yet, not fully exhausted by any means. Commercial results of the harbour improvement.

The following statement showing the gradual increase of foreign trade, consequent on the increase of water over the bar, will, I think, prove interesting, and exhibits Galveston's commercial growth in succinct form. Increase of foreign trade and shipping.

The proportion of the foreign commerce in the hands of Great Britain is so large that a table showing the increase of British trade, owing to the better harbour facilities, is also inserted as being of interest. Increase of British trade and shipping.

I do not include the domestic or coastwise business, which may be considered outside of the purview of such a report as the present; but that too has largely increased.

TABLE showing Effect of Harbour Improvements on Foreign Trade and Shipping at Galveston.

Year.			Depth of Water over Bar.	Foreign Tonnage Entered.	Foreign Tonnage Cleared.	Total Value of Foreign Trade.
			Feet.	Tons.	Tons.	£
1894	..	..	14 to 14½	302,940	309,975	7,368,018
1895	..	..	14½ 21	245,097	306,890	7,178,857
1896	..	..	21 25	485,747	484,211	11,447,847
1897	..	..	25 27	615,236	638,494	12,129,784

TABLE showing Effect of Harbour Improvements on British Trade and Shipping at Galveston.

Year.			Depth of Water over Bar.	Total Tonnage of British Shipping Entered and Cleared.	Total Value of British Trade.	Total Value of Trade in British Vessels.
			Feet.	Tons.	£	£
1894	..	..	14 to 14½	551,968	4,175,929	5,500,000*
1895	..	..	14½ 21	476,721	4,142,300	6,206,870
1896	..	..	21 25	787,541	6,905,621	9,141,882
1897	..	..	25 27	1,014,962	5,793,509	10,290,070

* Estimated.

Success of jetties and consequent expansion of trade.

A glance at the foregoing figures will immediately convince anyone of the striking expansion of foreign trade at Galveston, consequent on the success of the jetty scheme for obtaining a deeper channel over the bar.

This growth of trade was not, however, attained without severe struggles with other competing ports, and hard work on the part of those interested.

Committee for Utilisation of Deep Water at Galveston.

In 1895, when it was perceived that success was close at hand, a "Committee for the Utilisation of Deep Water at Galveston" was organised at Topeka, and was attended by 450 delegates from 12 Western States and territories.

Object of the committee.

The chief object of the committee is to obtain such freight rates between the Western States and ports on the Gulf of Mexico to the markets of the world, as will secure to the producer the profits on his labour, which are now wasted in the long haul by rail to the Atlantic ports, and also to enable the Western merchant and manufacturer to carry on a direct import and export business with foreign markets.

Its action and results therefrom.

It is to the action of this committee aided by strenuous local efforts, both of railways and merchants that much of Galveston's recent phenomenal expansion may be said to be due.

The following extract from a recent article in the public press on the work of the committee sums up this result:—

"The Deep Water Utilisation Committee has kept before the people of the West the improved wharf, elevator, railroad, and terminal facilities of the port, and the local committee of Galveston has received great and valuable assistance from the members of the committee throughout the 12 Western States in many ways during 1897 for which the local committee is very grateful.

"The effect of deep water at Galveston on rates of transportation to and from the trans-Mississippi country has been most strikingly manifested this year, and the ultimate benefits which the new route will afford this vast territory has been foreshadowed in no unmistakable way.

"The establishment of a new line of steamers between New York and Galveston, directly due to the securing of deep water at this port and the consequent war between the steamship lines, has convinced everybody who has watched the course of the fight and its immediate effects that not only will the coastwise rates never go back to the old basis, but also that the whole system of traffic in the West, the direction of its commerce and the charges thereupon will undergo a revolution.

"The effect already of this rate war has been to save the shippers and producers of the West millions of dollars upon the business of the year just closed, for they have saved greatly not only upon the shipments routed by these coastwise lines and through Galveston, but they have also saved much money upon shipments handled by all rail lines forced to meet the competition via the Gulf port."

The present report could hardly be said to be thoroughly complete if it did not take into consideration the probable future of the port of Galveston now that the long-existing impediment to the direct communication with the sea for deeply-laden vessels has been at last swept away.

In forecasting the future of the port the first and most important point to be taken into consideration is the natural advantage of the geographical position of Galveston.

A glance at the map will show that it is the most westerly port of any importance in the United States to the east of the Pacific, and that, in consequence, it is, or ought to be, the natural point of entry for the States and Territories of Texas, Oklahoma, Indian Territory, Kansas, Colorado, New Mexico, Utah, Arizona, Nevada, and California.

As a point of export, all the above-named territory is, properly speaking, tributary to Galveston, and, in addition, much of the remaining territory lying to the west of the Mississippi.

Of course it cannot be expected that all of this commerce should at once fall to Galveston, nor that she should monopolise all the business.

New Orleans, her one great existing rival Gulf port, will always, as far as can at present be foreseen, maintain her place as

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B

Probable future of Galveston as a port.

Advantages of the geographical position of Galveston.

Territory tributary to the port.

New Orleans the rival of Galveston.

the first of the Gulf commercial cities, but there is room for both and there is no doubt that Galveston will year by year approach New Orleans more nearly in the volume of her trade.

Possible great expansion of business.

When it is considered that the value of commerce here has almost doubled in the last two years it is not to be wondered at that almost anything is foretold as to the expansion of this port.

Possibilities as to cotton exports.

Year by year Texas grows more and cheaper cotton. Year by year more of it finds its way to the spinning markets of the world through Galveston.

It is by no means improbable that ere many years are past Texas will produce 4,000,000 bales of cotton, of which 3,000,000 bales at least will come to Galveston.

Recent rise of grain business.

The grain of the great territory west of the Mississippi is finding its way here in ever-increasing quantities, much to the alarm of the Chicago and New York shippers, who now recognise that in New Orleans and Galveston they have no mean rivals.

The last few years have revolutionised the grain business, the building of railways from north to south instead of from east to west has poured into the lap of the southern and south-western ports an endless stream of cereals.

Facts as to the agricultural exports of the United States, and Galveston's future share therein.

It must be remembered that at present over 67 per cent. of the exports of the United States is agricultural produce, and that the port with a vast agricultural territory tributary to it, such as Galveston, has an undoubtedly bright future, provided only proper means are taken to secure the necessary railways to the coast.

Galveston is situated some 40 miles east of the geographical centre of the United States, making, therefore, the centre of the country nearly 50 per cent. nearer tidal water via Galveston than via New York; that is to say, half of the territory of the United States is nearer Galveston than any other port east of this.

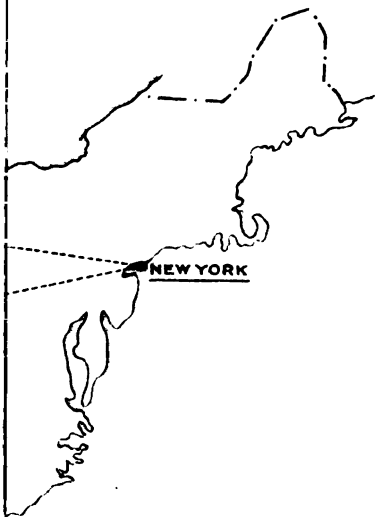
In 1860 only 14.42 per cent. of the population was west of the Mississippi River; 1870, 17.84 per cent.; and in 1890, 22.45 per cent.

At this rate of increase, compared with the east, by the year 1950 the population will be divided equally east and west.

In the principal surplus-producing States east of the Mississippi the yield of maize was, in 1889, 454,734,000 bushels; whilst west of that river it was 958,858,000 bushels, having increased 100 per cent. since 1879.

The amount of wheat grown in the principal surplus-producing States east of the Mississippi was, in 1890, 96,344,000 bushels; whilst west of the river it was 158,926,000 bushels.

Of the exports of the United States, in 1890 the following agricultural products comprised the percentages ~~given of~~ the whole:—



<i>es from</i>	<i>NEW YORK</i>	<i>to</i>	<i>centre of U.S.</i>
"	<i>NEW ORLEANS</i>	"	" " " "
"	<i>GALVESTON</i>	"	" " " "
"	<i>NEW YORK</i>	"	<i>CHICAGO</i>
"	" "	"	<i>SAN FRANCISCO</i>
"	<i>GALVESTON</i>	"	" "

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					Per Cent.
Raw cotton ..	..	..	..	..	29·69
Bread-stuffs ..	..	..	..	..	18·33
Provisions (meat and dairy)	..	..	..	..	16·12
Total ..	..	..	..	..	64·14

The foregoing figures were taken from the United States returns of the census of 1890.

As I remarked above, during the last year agricultural products comprised over 67 per cent. of the exports from the United States.

During the past few years it has been evident that trade, especially export trade, has been deflected from eastern ports, notably from New York, and has been absorbed by southern and Gulf ports. Deflection of trade to Gulf ports.

Out of 168,380,000 dol., the total increase in value of the exports from the United States for the year ended June 30 last over 100,000,000 dol. worth left southern ports. Increase of exports from the south.

From the above cited facts it is not rash to predict that matters being as they are Galveston's future as a port is of the brightest, provided that no opportunity be lost to maintain and, if possible, increase her advantages both natural and artificial. Probable bright future for the port.

Great, indeed, have been the changes for the better since 1894, only four years ago, when there might have been seen 15 cotton-laden vessels at one time waiting to cross the bar, and when no full cargo of any description whatever could be loaded without the aid of lighters. Now there is a direct channel of over 27 feet straight to sea, and a vessel can load the heaviest of cargoes at the wharves, and in two or three hours be well out at sea. Changes of the last four years.

In this respect Galveston has an immense advantage over her great rival New Orleans, where over 100 miles of river have to be traversed before reaching the sea.

In conclusion, whatever else may have been the result, there is not the slightest doubt in the world that the object of the Federal Government in building the Galveston jetties, viz., the cheapening and facilitating of commerce and the rendering of its burdens lighter, has been fully attained.

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